

RELY on National...with its knowledge of every type of adhesive formula and use...to provide the exact setting speed for your specific job.

What is your adhesive problem? Do you need *fast adhesion* to get maximum production speeds from modern packaging machinery...to increase working floor space by reducing feed conveyer lengths...to permit immediate stacking or shipping?

Or, do you need *slow adhesion*...for seasoning before hand bottle labeling...for delayed contact sealing or assembling...for accurately aligned billboard posting?

SHOULD AN ADHESIVE SET

**-----
in a flash?**

Setting speed — which must be maintained uniformly in fair weather or foul — is only one of the many properties an adhesive must have to do your specific job. An adhesive must be suited to surface conditions, shop use, storage and shipping hazards. In addition, an adhesive should carry a final factor of operating safety as insurance against commercial variables.

Why? Because the value of an adhesive is based — not upon its almost insignificant unit cost — but upon the final sales protection it gives to your product.

You can rely on National...with its long practiced, specialized skill...to give careful attention to every factor of your adhesive problem. Your inquiry is invited — NOW!

Offices: 270 Madison Avenue, New York 16; 3641 So. Washtenaw Avenue, Chicago 32; 735 Battery Street, San Francisco 11, and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto. In England: National Adhesives, Ltd., Slough.



National
ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

TECHNOLOGY DEPT:

UNIFORM

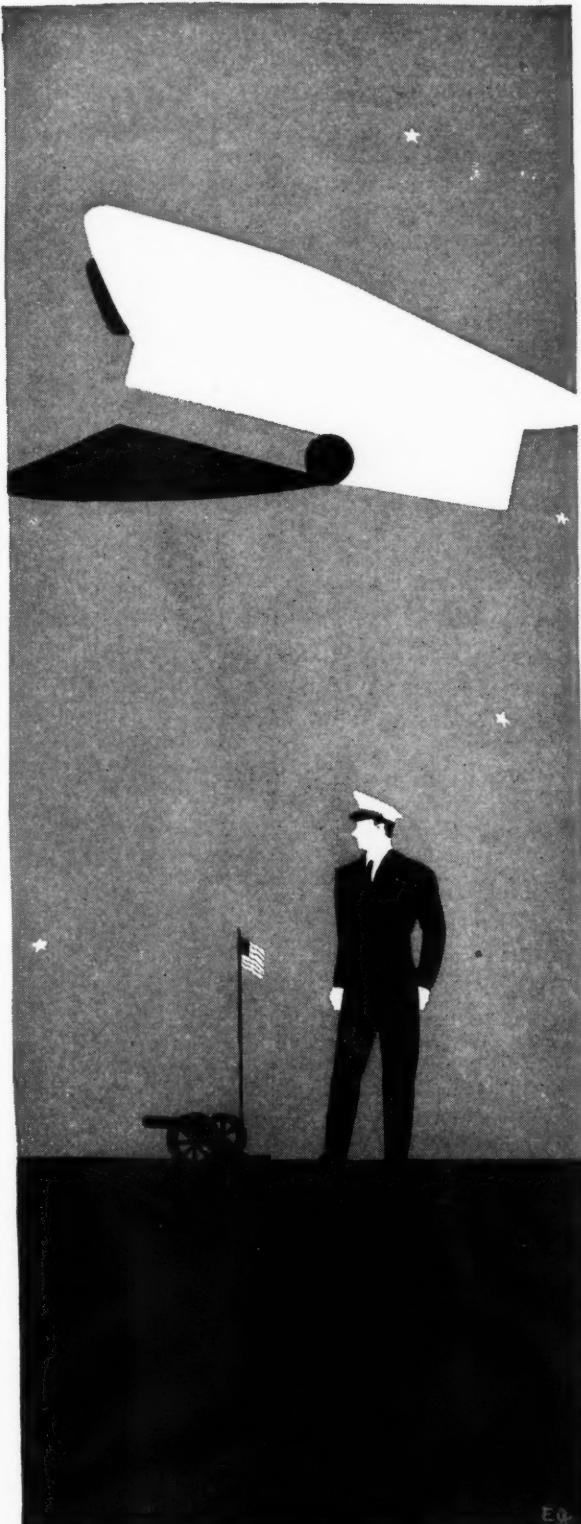
UNIFORM CAPS are consistent, constant, unvaried. One is as attractive, as efficient, as protective as the next and the one before.

Uniform caps mean today's production line will run as smoothly as yesterday's; one package will duplicate another; this product will enjoy the same top protection as that.

Phoenix C T Caps are uniform in fit and appearance; uniform in construction and workmanship; uniform in sealing ability and protectiveness . . . *uniform!*

Top wear for glassware

PHOENIX METAL CAP CO.
Chicago 8 and Brooklyn 18



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Published the 5th of each month by Modern Packaging Corp. Publication office: Twentieth and Northampton Sts., Easton, Pa. Subscription \$5.00 per year in United States; Canadian, \$5.50; foreign, \$6.00. Two-year subscription: United States, \$8.00; Canadian, \$9.00; foreign, \$10.00. All foreign subscriptions payable in United States currency or equivalent in foreign currency computed in current exchange by money order or by draft on a New York bank. Price this issue, 50¢ per copy. Copyright 1946 by Modern Packaging Corp. All rights reserved including the right to reproduce this book or portion thereof in any form. Printed in U. S. A. Acceptance under the Act of June 5, 1934, at Easton, Pa. Authorized October 7, 1936.

MODERN PACKAGING is regularly indexed in the *Industrial Arts Index*.



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MODERN PACKAGING

VOLUME 20

OCTOBER 1946

NUMBER 2

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COVER—The pottery container is one of the oldest forms of packaging. Its history goes back to antiquity when man first took masses of clay and formed them into jars and vessels. The graceful forms of ancient pottery and earthenware are retained in ceramic packages today, made by modern methods of jiggling and casting. The contrast between ancient and modern pottery is symbolized in this month's cover design by Peter Piening.

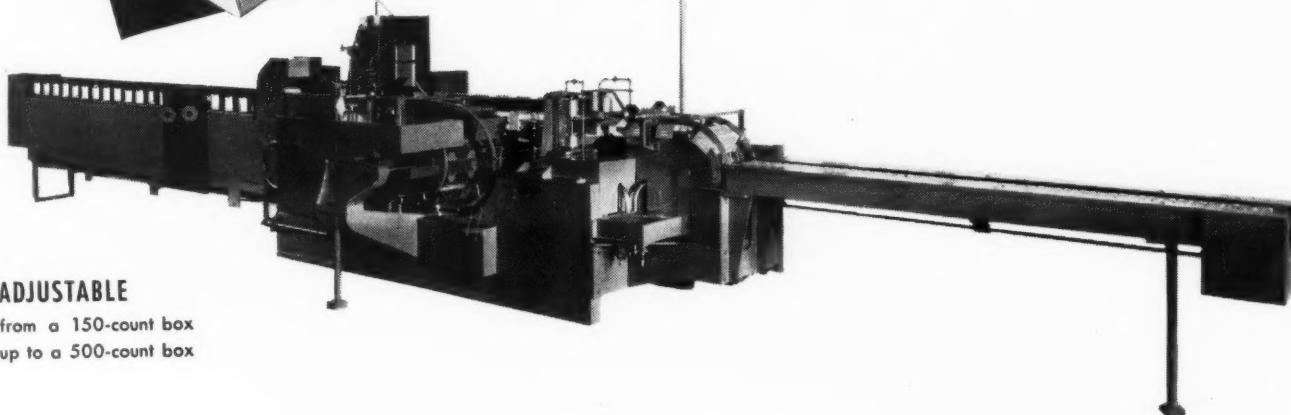
**They come out smooth,
unwrinkled,
dust-free**



Hard-to-Carton KLEENEX TISSUES

(T. M. REG. U. S. PAT. OFF.)

**have been high-speed cartoned
on REDINGTONS
since 1929**



ADJUSTABLE

from a 150-count box
up to a 500-count box

MORE than 17 years ago the makers of Kleenex Tissues approached the Redington engineering staff with the problem of automatically cartoning hard-to-carton cleansing tissues in its handy self-feeding box. An *adjustable* Redington (*the first of its kind*) was designed to carton any one of three sizes at a *high speed without wrinkling* the tissues.

Today, a large battery of Redington machines is producing the output of world-famous Kleenex Tissues (and other units are under construction). Speeds are *double* that of the pioneer 1929 model—the efficiency is greater. And the operation is *simple*:

Stacks of tissues are placed in the intake conveyor pockets . . . cartons are magazine-fed, expanded . . . stacks of tissues inserted . . . the carton is then closed by double-gluing the end flaps.

Wrinkling is prevented by a mechanism which presses down the stacks of tissue *lower* than the height of the box so that insertion is made without ruffling the top or bottom sheet. Skip glue mechanism places glue on carton flaps only where absolutely necessary . . . avoiding danger of glue adhering to the sheets . . . carton squaring mechanism turns out *neat*, squarely glued package . . . heavily padded drying belts hold the flaps down to produce a tight, dust-free carton.

All through the machine there are safeguards to assure a full, sanitary, wrinkle-free package. The machines themselves are built with *outstanding construction features* that add tremendously to the daily efficiency and long life of all Redington packaging machines.

Redington's packaging experience and ingenuity—49 years of it—are ready to go to work on *your* problem, *too*.

F. B. REDINGTON CO. (Est. 1897), 110-112 So. Sangamon St., Chicago 7, Illinois

FOR CARTONING • WRAPPING • SPECIAL PACKAGING

REDINGTON
PACKAGING MACHINES

Another Good Thought

PASSED ALONG . . .

KEEP ON
KEEPIN' ON



MAKERS OF

**FOOD PROTECTION
PAPERS**



GENUINE VEGETABLE PARCHMENT
SPECIAL TREATED . . .
GREASEPROOF . . .
WAXED . . .

"THE WORLD'S MODEL PAPER MILL"

**KALAMAZOO VEGETABLE
PARCHMENT COMPANY**

PARCHMENT · KALAMAZOO 99 · MICH.
BRANCH PLANTS IN HOUSTON, TEXAS
AND PHILADELPHIA, PENNSYLVANIA

GEE! made from GEON

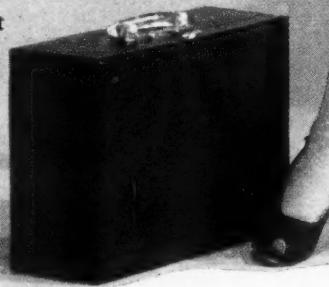
Some more of the thousands of applications for GEON raw materials

THEY'VE made fly swatters and shower curtains—upholstery and floor tiles—wire insulation and acid tank linings—and thousands of other useful, attractive products from GEON polyvinyl raw materials. Here are some more—raincoat, hat, matching handbag, shoes, suitcase—colorful, nice to look at, long-lasting, easy to clean.

GEON, as can be seen, is an extremely versatile material. That's because of its unusual properties which may be compounded into finished products in a wide variety of combinations. Products made from GEON may be made to resist water, chemicals, sunlight, heat, cold, oils and greases, abrasion, mildew, ozone, and most other normally destructive factors. They may be flexible or rigid, clear or opaque, brilliantly or delicately colored.

And don't forget that GEON can be pressure or injection molded, extruded, calendered or cast into sheet or film. In solution or latex forms it can be applied as coatings for fabrics and fibres of all types as well as for paper and cardboard. There are applications for GEON in *every* home, *every* industry.

For more information about GEON, please write Dept. L-10, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

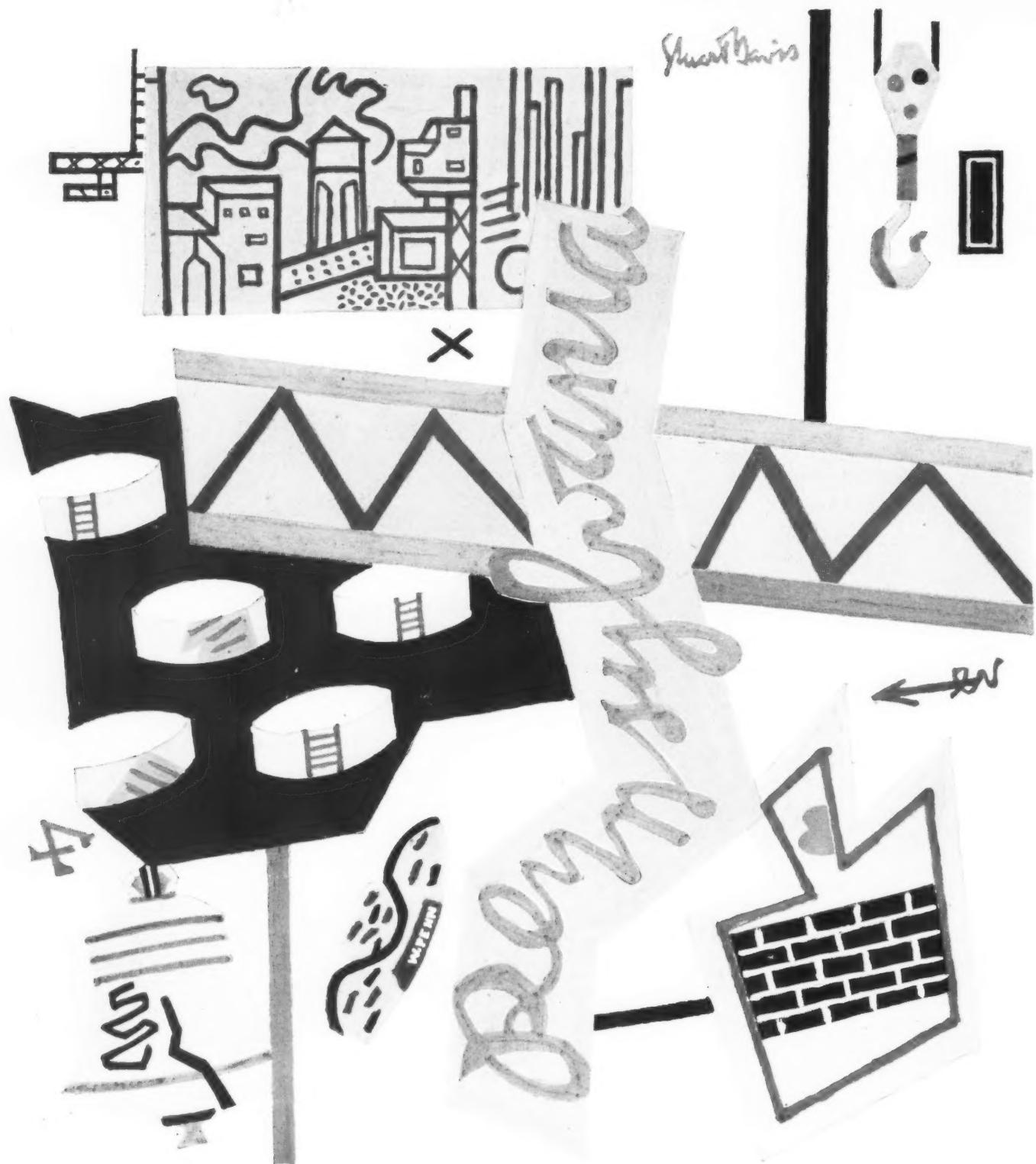


Products shown are made of Pantex and Pantasote's Wynsote.



B. F. Goodrich Chemical Company

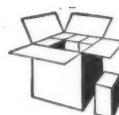
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THE B. F. GOODRICH COMPANY



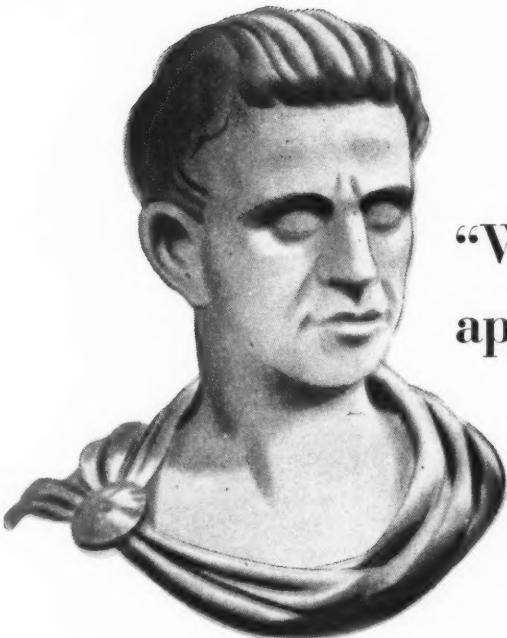
Artist — Stuart Davis, native of Pennsylvania

PENNSYLVANIA — annual purchases: \$5½ billion — mostly packaged.

CONTAINER CORPORATION OF AMERICA



Save Waste Paper



“Work for smart people...you get no appreciation from the other kind...”

Some smart apple first made the above crack a long time ago . . . before there were vocational councilors, management engineers, or business kibitzers. Time has not staled nor experience exaggerated the sagacity of the sentiment...both for spot judgment and as a souvenir to stick in your skullpiece for keeps.



That's the only kind we work for . . .

People who aren't smart don't recognize the smart ideas that make better displays . . . Better displays deliver more results, and draw smart customers . . . More smart customers result in more and better displays . . . It's a pleasant cycle which gets more business for our customers, and also more customers for us.

EINSON-FREEMAN CO., INC.

Selective Lithographers

Starr & Borden Aves., Long Island City, New York

There's more
than meets her
eyes in



PACKAGES BY MILPRINT

To assure the perfect protection
and extra eye appeal your package needs —
Milprint packages are created by men whose
experience and technical knowledge is unexcelled
in the field of Package Engineering.

INDUSTRY EXPERTS

Men familiar with **YOUR** particular
field guide the development and
creation of every package.

PACKAGING ENGINEERS

108 Package engineers in the field
study your packaging problems at
the source!

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Competition, distribution, market
potentials, are all surveyed to assure
a package that can compete —
and sell!

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Master printers — Mechanical engineers
— Machinery experts advise on
wrapping and packaging methods,
on all technical problems.

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materials, lamination and coatings
test and re-test for maximum
protection.

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One of America's leading art staffs —
artists and designers specializing
in every field of design create your
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PACKAGING
HEADQUARTERS
TO
AMERICAN
INDUSTRY

Printed Cellophane, Pliofilm, Glassine, Aluminum Foil, Cellulose Acetate, Vinyl,
Lacquer coated and Laminated Papers in all forms, including Sheet Wraps,
Rolls, Pouches, or Specialty Bags, Revelation Bread Wraps, Specialty
Folding and Window Cartons, Counter Displays, Simplex Pie and Cake Units.

SALES OFFICES IN ALL PRINCIPAL CITIES

Your Guide to the Best IN SHIPPING CASE SEALING EQUIPMENT

PACKOMATIC

AUTOMATIC
CASE SEALERS
FOR PAPER SHIPPING CONTAINERS

AUTOMATICALLY APPLIES WIDE VARIETY OF GLUE SPREADS

Handles light or heavy corrugated containers, also double corrugated light or heavy solid fibre & government approved V2 & V3 cases.

One of many outstanding features of PACKOMATIC'S MODEL "D" Automatic Case Sealer is its flexibility in the application of adhesives—as illustrated. Glue is spread in thin film to assure maximum effectiveness.

SEALS WIDE RANGE OF CASE SIZES. PACKOMATIC Model "D" Case Sealers are designed to seal both tops & bottoms simultaneously . . . Or for top-sealing or bottom-sealing only, if required. They are rapidly and easily adjustable to a wide range of case sizes. Portable Models are available where desired, at slight additional cost.

NO OPERATOR REQUIRED. PACKOMATIC MODEL "D" Case Sealers are fully automatic. Cases can be delivered to gluer from conveyor, packing table, skid truck—or by hand. Cases are automatically aligned, flaps opened, glued, closed—sealed in compression unit—then discharged ready for shipment or storage. Requiring no attention, except for replenishment of glue-pots or for changing case sizes.

TROUBLE-FREE MECHANISM. Model "D" Case Sealer construction is heavy, sturdy. Mechanism is simple, trouble-free. Easy to keep clean. Maintenance cost is low. Adhesive-savers, Time-savers, Space-savers. PACKOMATIC MODEL "D" Case Sealer compression belts are top-and-bottom-synchro-driven—an exclusive and important PACKOMATIC feature.

PACKOMATIC
PACKAGING MACHINERY
J. L. FERGUSON CO., JOLIET, ILL.

J. L. FERGUSON COMPANY

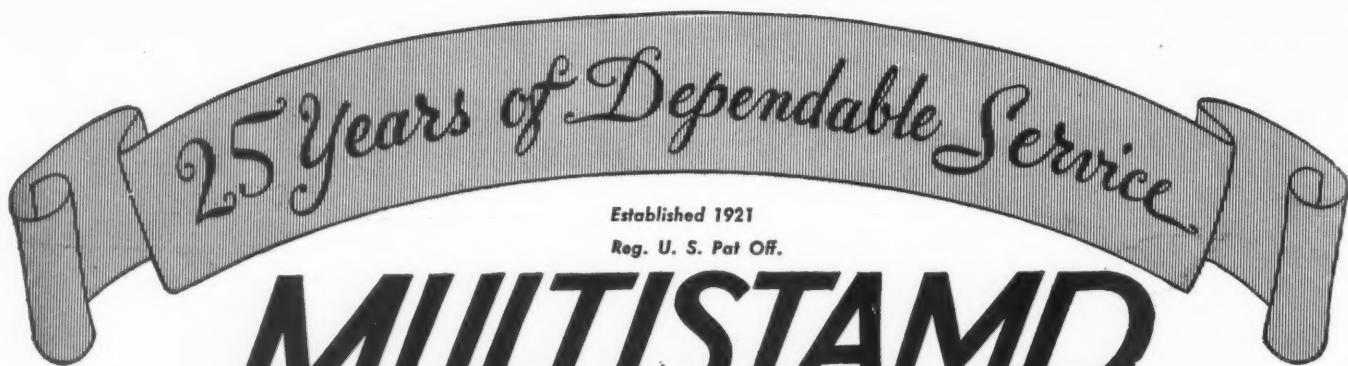
SPEEDS
UP TO
3000 CASES
PER HOUR

Heading a wide variety of vital packaging equipment, PACKOMATIC'S Model "D" Shipping Case Gluer & Sealer invites the thoughtful consideration of those who ship packaged products in paper cases. Write for your copy of the new PACKOMATIC Shipping Case Sealer Folder.

PACKOMATIC packaging equipment includes: Case Sealers, Case Imprinters . . . Carton Fillers & Sealers, Volumetric Fillers, Net Weight Scales, Carton Making Machines . . . Dating (Coding Devices) . . . Serial Numbering Devices . . . Paper Can Tube Cutters, Paper Can Tube Gluers, Paper Can Shrinkers, Paper Can Cappers.

PACKOMATIC assures you more than a quarter of a century of successful experience in helping leading manufacturers in many fields to shorten the bridge between the production line and the shipping platform . . . at savings of time, labor and money. Your inquiry to the PACKOMATIC office nearest you—or direct to Joliet—incurs no obligation. J. L. FERGUSON CO., Joliet, Illinois.

Chicago • New York • Boston • Philadelphia • Dallas • Baltimore • Cleveland • San Francisco • Tampa • Denver • Los Angeles • Seattle • Portland



MULTISTAMP

STENCIL DUPLICATOR

MANUFACTURED ONLY BY THE MULTISTAMP CO., INC. NORFOLK, VIRGINIA

**COPIES ANYTHING . . . written, typed or drawn
PRINTS EVERYWHERE . . . in hard-to-reach places
PRINTS ON TAGS, LABELS, boxes, cartons, etc.**



\$7.50

F.O.B. FACTORY

**COMPLETE
(NON-MECHANICAL)
OUTFIT**

1 Rubber Stamp Size
for Shipping Tags,
Labels, Cards, etc.

The No. 1 MULTISTAMP is a flexible rubberless hand stamp that takes the place of rubber stamps . . . and has the valuable advantage of permitting copy changes to suit your needs. Prints up to 5 lines of type, 3 in. long. MULTISTAMP eliminates re-typing and slow hand-addressing—it has a thousand uses around any office or shipping department.

INCLUDES: Twenty-five Stencils, an ample supply of special MULTISTAMP ink, ink brush, writing board and a stylus pen. Case measurements: 6 1/4 in. wide, 4 1/2 in. deep, 3 3/4 in. high. Weight: 2 lbs.



\$15.00

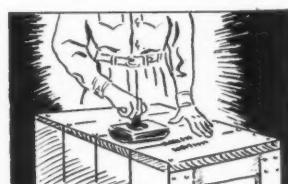
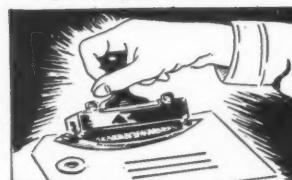
F.O.B. FACTORY

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(NON-MECHANICAL)
OUTFIT**

3 Post Card Size
for Larger Tags,
Labels, Notices, etc.

The No. 3 MULTISTAMP is the "Rocker Type" Duplicator that prints on practically anything. Size 5 1/4 in. long by 3 1/4 in. wide, a single stencil can contain up to 32 lines of type. No experience or skill is required to operate the MULTISTAMP.

INCLUDES: One-half quire of stencils, ample supply of special MULTISTAMP ink, ink brush, writing board, stylus pen, type cleaner, bottle of correction varnish. Packed in a handy, sturdy case. Case measurements: 7 1/2 in. wide, 6 in. deep, 6 1/4 in. high. Weight: 4 lbs.



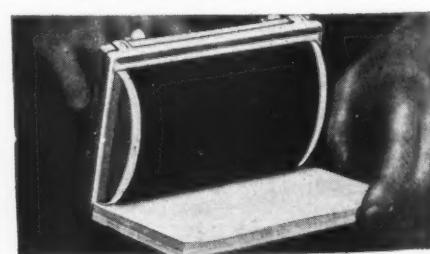
Every MULTISTAMP Outfit is Guaranteed for 5 Years! Write for Illustrated Folder Showing Other Complete Outfits for \$25 to \$82.50.



Just type, write, draw or trace on the stencil



Snap it on MULTISTAMP. Quick, automatic, touch no ink



Print on post cards, shipping tags, labels, boxes, etc.



THE FOLDING CARTON'S ANCESTOR APPEARS ON THE SCENE

Like most great inventions, the folding carton, too, was developed in slow stages. Its earliest ancestor, the "paper of tacks," first appeared before the middle of the Nineteenth Century. This crude paperboard container for upholsterers' tacks was probably thought up by someone who decided to sell more tacks in less time than his competitor. The same

idea has actuated those who subsequently improved and refined the folding carton until it has become the most effective and most widely used packaging tool in modern merchandising.

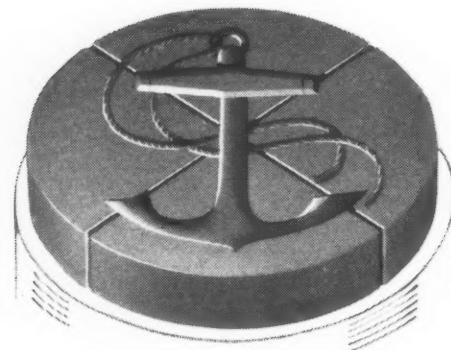
UNITED PAPERBOARD COMPANY, INC.
PAPERBOARD FOLDING CARTONS
285 MADISON AVENUE NEW YORK 17, N. Y.

A complete series of these illustrations consisting of 12 pictures and carrying no advertising, will be sent on request.



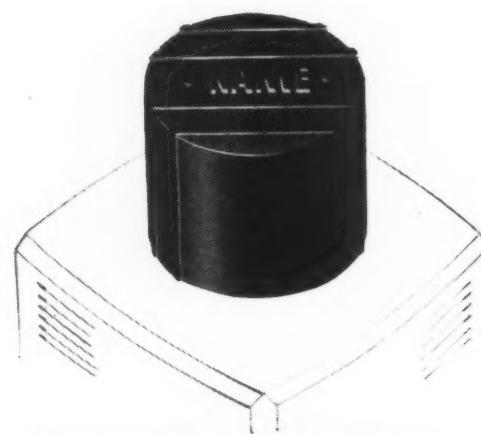
Sales-stimulating suggestions for your private mold caps

• • • • • • • • • • • • • • • • • • •



PACKAGES FOR MEN gain a fresh, distinctive appearance with Artmold Caps specially designed to catch the masculine eye. Attractive cameo designs distinguish your package, build recognition for your line.

• • • • • • • • • • • • • • • • • • •



HIGHLIGHT YOUR BRAND NAME with a modern Artmold Cap. Set against your own choice of background, depressed and filled in with color, your name or trade-mark leaps to greet the customer's eye.

• • • • • • • • • • • • • • • • • • •



TALL, GRACEFUL Artmold Caps add height to your package. Smart bud pattern is only one of an unlimited variety of designs you can use for business-building style and beauty and performance.

• • • • • • • • • • • • • • • • • • •



INDIVIDUALIZE YOUR "LUXURY TRADE" items with cap design motifs. Clever cameos in Artmold Caps set off your brand name, add distinctive beauty that stimulates brand recognition, builds sales.

• • • • • • • • • • • • • • • • • • •



GET A HEAD START on competitive products by giving your packages the extra style, beauty, and distinction of Armstrong's Artmold Caps. For design suggestions, send a sample or drawing of your package to Armstrong Cork Co., Glass and Closure Div., 5910 Prince St., Lancaster, Pa.





The LAMCOTE PROCESS

permanently affixes a lustrous, transparent, tough film of plastic to the surface of paper, cardboard, fabric or other material.

FOR PACKAGES and 1001 SALES-BUILDING USES

Point-of-purchase displays, broadsides, mailing folders, catalogs, die-cut novelties, box-wraps, fabrics, specialties.

ONE TOUCH conveys the atmosphere of elegance! Lamcote's s-m-o-o-t-h "feel" suggests fine quality merchandise within. Its gleaming richness enhances package printing and design . . . makes Lamcote a truly low-cost investment in added package prestige. Resistance to moisture and grime assures a long life of counter and shelf attractiveness — protects merchandise, too. This amazing process forms a transparent armor for the package—flexible and tough.

A POWERFUL SELLING HELP FOR BOXMAKER AS WELL AS MANUFACTURER . . . Make your package REACHED-FOR, with this transparent, gleaming protection that intensifies the beauty of any printing while it laughs off counter-soil and handling.

WRITE TODAY FOR LAMCOTE SAMPLES AND DETAILS



ARVEY CORPORATION
3462 N. Kimball Ave.
Chicago 18, Illinois

300 Communipaw Ave.
Jersey City 4, New Jersey



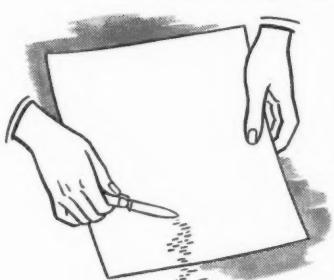
**It took
today's**

seven years to make Coated Lithwite*

**This revolutionary clay-coated paperboard
reached its present high point of performance through
7 straight years of pioneering and development**

Coated Lithwite has been tested and developed by Gardner-Richardson over a seven-year proving ground. It's *past* the pioneering stage. Behind it is experience measured in hundreds of millions of cartons. And it's experience that shows on the surface . . . in brightness and velvety feel . . . in the brilliant way it prints . . . in the sure way it folds, tucks or bends without shattering.

To leading carton users, *Coated Lithwite* is a known quality. But *quantity* has not been great enough to meet carton buyers' needs. A project is under way now to increase the volume of *Coated Lithwite*, as well as the range of sizes. How soon? A matter of months, but alert carton buyers will inquire about *Coated Lithwite* for their cartons much sooner—probably today.



Always "up to scratch." Take your knife and scratch the surface of *Coated Lithwite*. Notice the fine, powdery white coating that fluffs off. *Coated Lithwite* is *clay-coated* . . . has a surface that's uniform, hard, yet free from "chalkiness."

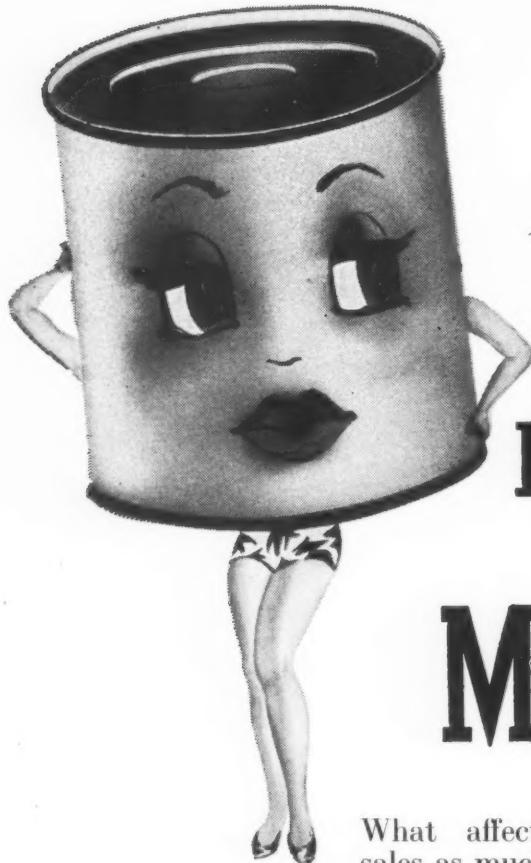
The GARDNER-RICHARDSON Co.

Manufacturers of Folding Cartons and Boxboard, Middletown, Ohio

Sales Representatives in Boston • Chicago • Cleveland • Detroit • New York

• Philadelphia • Pittsburgh • St. Louis

*Reg.U.S.Pat.Off.



does your
package have

MAGNETISM?

What affects your sales as much as the quality of your product? The magnetism of your package! To reach your sales quotas, your product must have package magnetism—the power to draw consumers away from competing brands.

ROSSOTTI has been creating packaging with customer appeal since 1898. And the sales' records of our clients bear out the drawing power of ROSSOTTI designed labels and cartons. Such consistent success is based upon our specialized experience . . . our thoroughness in analyzing your packaging problem.

We do not simply dream up some

art ideas. Before we begin to design your new label or carton, we make a comprehensive analysis of your market. We study the packaging of both your national and local competitors. Only then do we create your new packaging—and give it the distinction which keeps drawing consumers to your package.

These highly skilled services and the facilities of our large modern plant are at your disposal. Contact the ROSSOTTI consultant in your region—NOW—during this postwar period when you need new packaging to draw new customers to your brand. Naturally, there will be no obligation.

Rossotti
SINCE 1898

ROSSOTTI LITHOGRAPHING CO., INC. NORTH BERGEN, N. J.

BOSTON 9, Mass.: 200 Milk Street • ROCHESTER 4, N. Y.: 183 Main Street, East
JACKSONVILLE 9, Fla.: 6503 Sapphire Drive • CHICAGO 11, Ill.: 520 N. Michigan Avenue
WEST COAST PLANT: 5700 Third Street, San Francisco 24, Cal.

A 3-way vote in package selection



SHE VOTES WITH HER EYES. Eighty-five per cent of consumer buying impulses begin *visually*. Transparent packaging starts the sale by attracting her attention . . . clinches it by convincing her of exactly what she's getting.



HE DEPENDS ON CASH REGISTER. The retailer gives preferred display to what looks like a seller—has eye-appeal plus necessary protection. Besides adding to a product's display value, moistureproof Du Pont Cellophane keeps it fresh and clean.



YOU MUST CONSIDER COSTS. That's the final test of an effective package. Alert manufacturers are scrutinizing all aspects of marketing costs and looking for the package that will do a proper merchandising and protective job efficiently and economically.



ALL PREFER DU PONT CELLOPHANE. It has the right balance: transparency, protection and true economy. Right now the demand still exceeds the supply, but we hope that soon our converters and ourselves can supply all requirements.

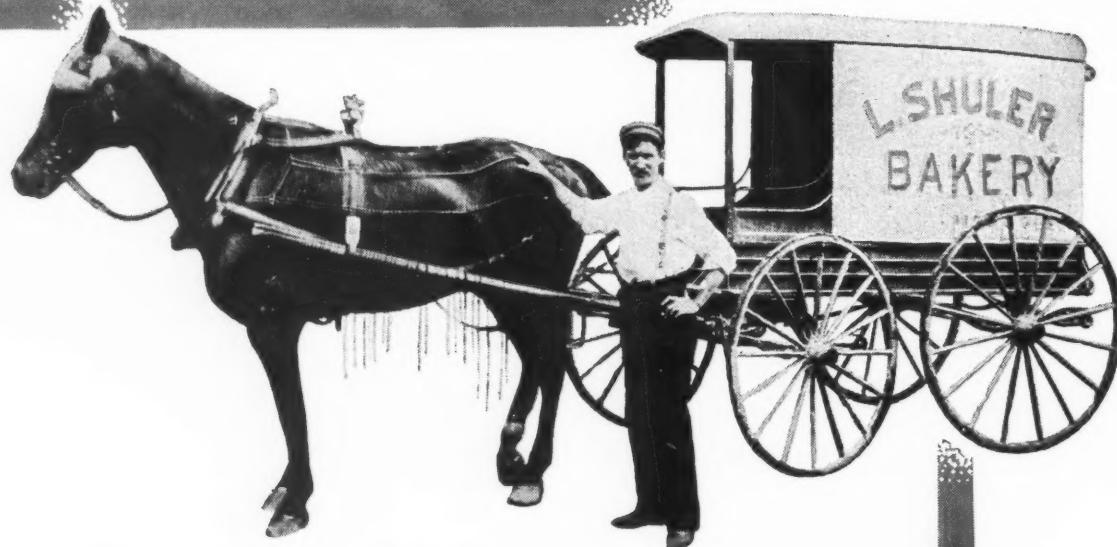
Write today for our new booklet, "Design for Selling," a study of consumer buying habits in supermarkets. E. I. du Pont de Nemours & Co. (Inc.), Cellophane Division, Wilmington 98, Delaware.



Cellophane *Shows what it Protects—at Low Cost*

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY

SCHULER POTATO CHIP CO.



From This Humble Beginning ...

SCHULER is another example of the way in which American initiative and industry, from small beginnings, has brought the best there is to every American citizen's door.

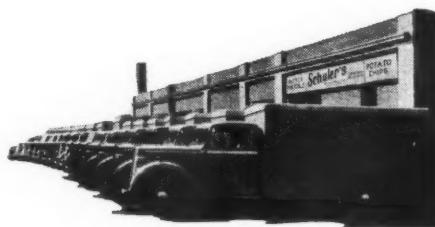
In 1909 Andrew S. Schuler began to make pretzels, using his father's horse and wagon for "distribution". Later he made other food products, specializing in potato chips.

Today, Schuler-owned farms, supervised by trained plant pathologists, produce 325,000 bushels of potatoes annually and 40,000 bushels of certified seed potatoes for the many independent farmers who also supply them.

Two modern plants in Rochester, air-conditioned warehouses, 100 motor trucks and modern packaging in air-tight containers, complete the picture of this industry which grew from a handful of men to more than 500 employees and a well-organized executive group...in the lifetime of its founder.

HOW SCHULER USES RIEGEL FUNCTIONAL PAPERS

Schuler uses printed duplex bags of Riegel's Diafane for all their potato chips as well as most of their other products. Although far from the cheapest packaging for potato chips, Schuler has adopted it as the best way to prevent rancidity and maintain their high quality standards.



Riegel Papers

FOR FUNCTIONAL PACKAGING

RIEGEL PAPER CORPORATION • 342 MADISON AVE. • NEW YORK 17, N. Y.



TOQUILLAS

THE FINEST IN STRAWS

When it comes to fine straw hats, genuine Panamas, or "Toquillas" as they are called, are way out in front. Manufactured principally in Ecuador and Columbia, these hats are so named because for many years the focal point in their distribution has been Panama. Panama hats are made of finely divided shreds of unopened screw pine leaves, which are woven by hand on blocks. Those of the highest quality possess the texture of fine linen, and require months to complete. Produced for over 300 years, the genuine Panama is recognized throughout the world for its exceptional quality and craftsmanship.

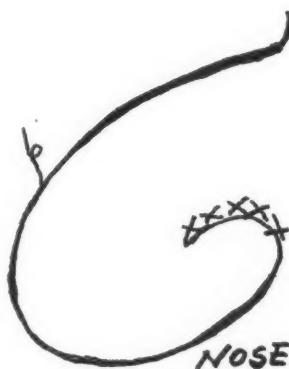
The commercial glass manufactured by Carr-Lowrey has in its own field earned wide recognition. For over 57 years, Carr-Lowrey has produced glass containers to the most exacting standards. No wonder, then, that so many quality minded buyers of fine commercial glass continue to specify Carr-Lowrey.

**CARR-LOWREY
GLASS CO.**

Factory and Main Office: BALTIMORE 3, MD. New York Office: 500 FIFTH AVE. (18) Chicago Office: 1502 MERCHANDISE MART (54)

He who knows not, and
knows not that he knows
not, is a fool,—avoid him.
He who knows not, and
knows that he knows not,
is simple,—teach him. He
who knows, and knows not
that he knows, is asleep,—
wake him. He who knows,
and knows that he knows,
is a wise man,—follow him.

How much do YOU know
about packaging paper pro-
cessing? See our ad last
month in this magazine, en-
ter our quiz contest and win
yourself some easy money.
Matthias KNOWS pack-
aging paper. Bring your
problems to Matthias
Paper Corporation, 165
W. Berks St., Phila. 22, Pa.,
or to them at their New
England Office, P. O. Box
127, Wellesley, Mass., or to
their southern branch, Guil-
ford Bldg., Greensboro, N. C.





This attractive new Elizabeth Arden holiday package by Shaw-Randall displays
 lipstick and nail polish in a gaily decorated transparent Christmas tree. The
 acetate covering gives full protection and full view to the product.

Shaw-Randall, originators and producers of the newest and best in transparent
 containers, can give your product new glamor in the customer's eyes.

SHAW-RANDALL CO.

DESIGNERS and CREATORS of VISIBLE PACKAGES

PAWTUCKET • RHODE ISLAND

A DIVISION OF SHAW PAPER BOX COMPANY

SALES REPRESENTATIVES

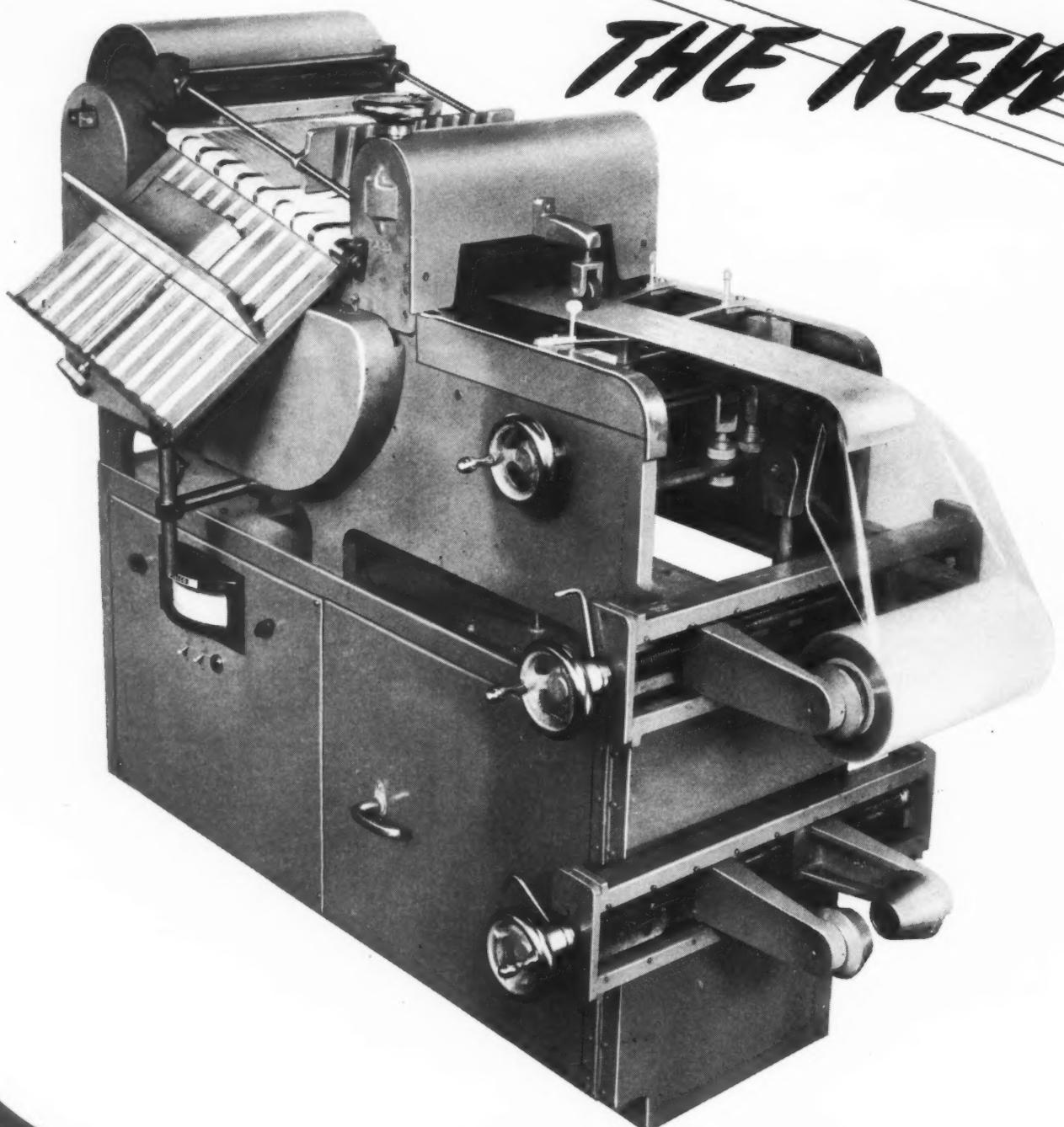
Fred Mann & Co., New York;

H. B. W. Snelling, Boston;

L. T. Swallow & Associates, Detroit

FIRST

THE NEW



KONO-MEAD EQUIPMENT CORPORATION 13

SHOWING!



**Exhibit begins November 1st
at our Flushing, L. I. Headquarters**

See the machine that turns out from 5,000 to 12,000 heat-sealed bags per hour—with one operator!

This display . . . featuring the KONO-MEAD HIGH SPEED, ELECTRONICALLY CONTROLLED ROTO BAG-MAKING MACHINE . . . is of vital interest to all concerned with the packaging of commodities in bags of cellophane, diaphane or aluminum foil. Makes single-wall or duplex bags in sizes from 2 in. to 18 in. long and from 1½ in. to 9 in. wide . . . with unprecedented speed for heat-sealing. It increases output, decreases costs!

Come and see this amazing machine in operation! Orders will be taken at the exhibit. Exhibit open daily, 10 A.M. to 4 P.M. Special appointments by request.

N 133-23 35th Ave., Flushing, L. I. • Tel. FL. 3-8113



Modern packaging for perishables is making such rapid strides that it is completely changing the marketing procedure in the field of fresh fruits, vegetables and seafood.

In step with this progress, AQUASTOP FP* was especially developed to meet requirements for a packaging material that could be used with very light containers for safe bulk shipment of perishables by air transport. Inherently strong, non-toxic and odorless, this material is easy to use and combines other advantages unique in a packaging material.

AQUASTOP FP* may be used as heat sealed bags or as case liners for wire bound boxes or crates. Equally safe for air, water or ground transportation of bulk shipments of fresh foods.

If the packaging situation in this field is puzzling you as it has many others, get the facts from men here at AQUASTOP headquarters who are able and willing to help you. Prompt consideration will be given to your inquiry.

TECHNICAL DATA

No cracking
No tackiness
No flow
No loss of flexibility



The seal is as strong as the material itself

Retains waterproofness
Permeable to CO₂
Impermeable to water
Withstands minimum hydrostatic pressure of 40 lbs. per sq. in.

* T. M. Reg. U. S. Pat. Off. and Foreign Countries

PROTECTIVE COATINGS CORPORATION

Manufacturers and Consultants

681 Main Street • Belleville 9, N. J.

AQUASTOP

*Pat. Pending

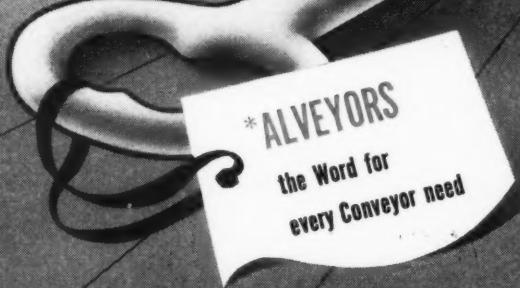
THE
BREATHING
PACKAGE*

© 1945

ALVEYORS*

THE ONE KEY THAT FITS!

Greater
Profits



MOVE MORE GOODS FOR LESS

Less Time • Less Breakage • Less Cost

*TRADE MARK

ALVEY *St. Louis*
Conveyors

ALVEY CONVEYOR MANUFACTURING CO., 3201 SOUTH BROADWAY, ST. LOUIS 18, MO.

BEMIS complete packaging service

GIVES YOU
SHIPPING AND SALES
ADVANTAGES
AT LOW COST



Bemis bags and services fill a wide variety of packaging needs, for a wide variety of products. On new or established products—either consumer or industrial—remember Bemis for:

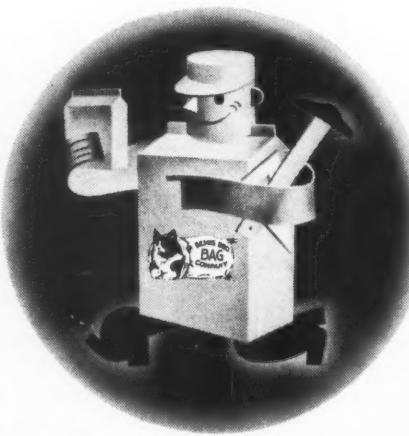
1. Outstanding facilities for production, brand printing, and servicing.
2. Consultation service on package design.
3. Engineering service on filling, closing, and handling operations.

Here are three of the ways Bemis is serving industry today!



DELTASEAL BAGS—

Attractive and popular paper consumer-packages which retailers feature in counter and floor displays. Housewives like the easy-pouring, self-closing spout. Deltaseal Bags are used for packaging flour, rice, sugar, salt and many similar powdered or granular products.



PAPER BAG SPECIALTIES—

Tailor-made bags for irregular or odd-shaped objects, and unusual shipping conditions. Bemis analyzes your problem and makes recommendations. Mattresses, cans, coffins and a variety of other out-of-the-ordinary products are now packed in Bemis Bags.



RESEARCH—

To determine the best handling of your packaging problems, Bemis Shipping Research Laboratory studies your products. Laboratory and field tests are conducted. Safety, practicability, economy, appearance are all considered to make sure the bag selected will do the job.

FOR THE BEST, LOW-COST ANSWER TO PACKAGING PROBLEMS CALL THE BEMIS SPECIALIST

BEMIS BRO. BAG CO.

Baltimore • Boise • Boston • Brooklyn • Buffalo
Charlotte • Chicago • Denver • Detroit
E. Pepperell, Mass. • Houston • Indianapolis
Kansas City • Los Angeles • Louisville
Memphis • Minneapolis • Mobile



New Orleans • New York City • Norfolk
Oklahoma City • Omaha • Orlando
Peoria • St. Helens, Ore. • St. Louis • Salina
Salt Lake City • San Francisco • Seattle
Wichita • Wilmington, Calif.

Presenting *FACIL-FAB
REG. U. S. PAT. OFF.
Distinctive Packaging Material



- #1-Yellow-Vinyl coated
—design #544
- #2-Ice Blue-Uncoated
- #3-Red-Vinyl coated—
Design #471

*Facil-Fab

REG. U. S. PAT. OFF.
FACIL-FAB* is available in both unembossed and in numerous
embossed designs, as shown in samples above.
Vinyl coated FACIL-FAB can be used on automatic box machines
and can be fed through automatic gluing equipment without sur-
face staining. Manufactured in 16 colors. Special colors on request.

*FACIL-FAB is a laminated rayon yarn product
originated and manufactured exclusively by

FACIL FABRICS CORP.

Office & Sho-Room
111 West 24th Street
New York 11, N.Y.

Plant
185 Sixth Avenue
Paterson, N.J.

This full page advertisement was made by
photographing embossed FACIL-FAB formed
into a valance and drape.

SPECIALTY PAPERS

LAYOUT PRINTED
PACKAGING
PAPERS

GIFT WRAPS

**DECOTONE
PRODUCTS
DIVISION**

CUSTOM-CREATES PACKAGING MATERIALS FOR SPECIFIC PRODUCT NEEDS

PACKAGING PAPERS

MOISTURE-VAPOR PROOF PAPERS

PROTECTIVE COATED SPECIALTIES

PAPER-BACKED ALUMINUM FOIL

PRINTED & EMBOSSED BOX WRAPS

PRINTED TRADE MARK PAPERS

LAMINATED PAPERS

HEAT-SEALING PAPERS

and Many Others

**DECOTONE PRODUCTS
DIVISION**

Fitchburg Paper Company

PACKAGING PAPERS *Converted Papers* SPECIALTY PAPERS

FITCHBURG, MASS.



Accent on SALES

Every Gaylord container—whether it be
shipping box, folding carton, or kraft bag
—is designed with two basic factors in mind—

- *It must safely carry and protect
the product*
- *It must have sales appeal*

Corrugated and Solid Fibre Boxes

Folding Cartons

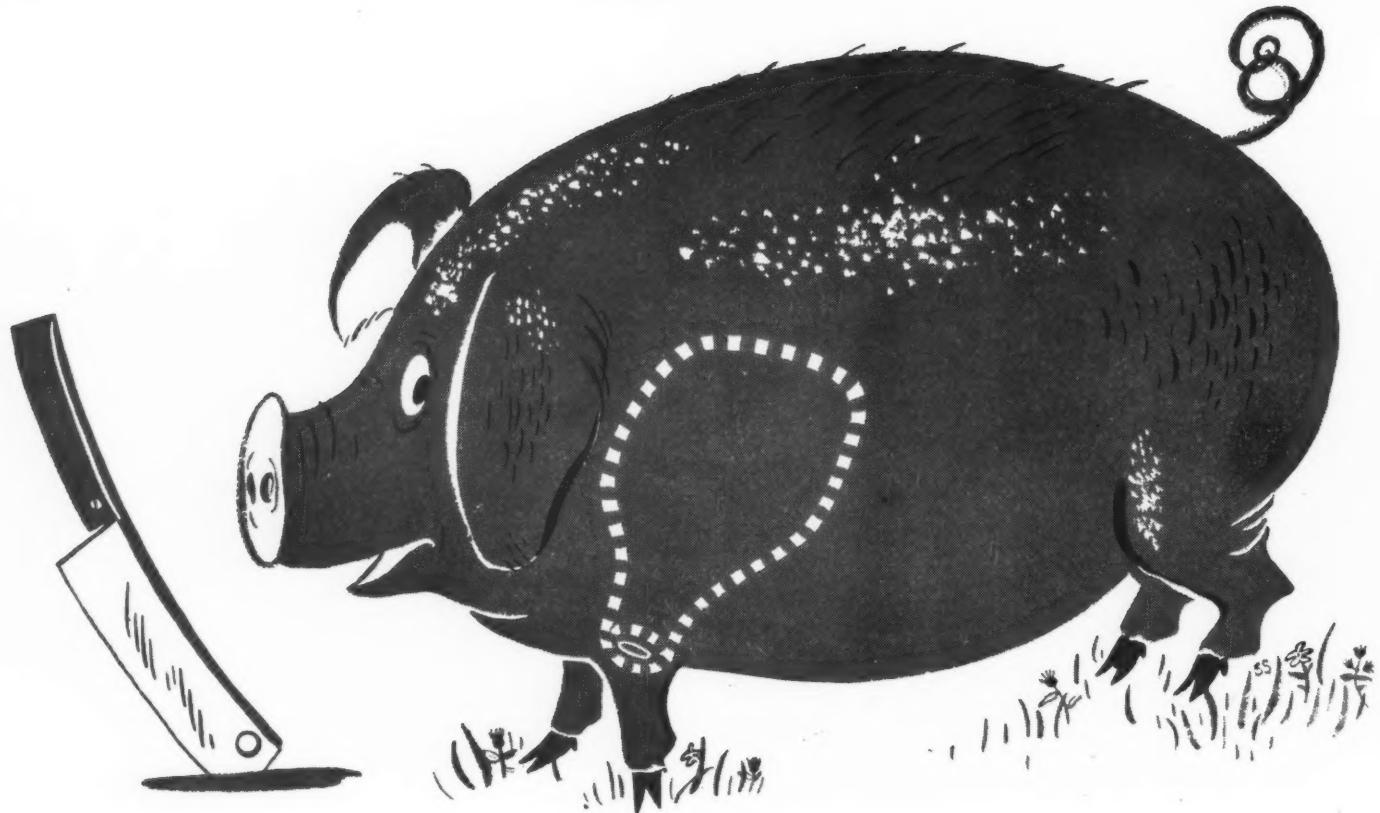
Kraft Grocery Bags and Sacks

Kraft Paper and Specialties

*Standard of the
Packaging Industry*

GAYLORD CONTAINER CORPORATION **General Offices, SAINT LOUIS**

New York • Chicago • San Francisco • Atlanta • New Orleans • Jersey City • Seattle
Indianapolis • Houston • Los Angeles • Oakland • Minneapolis • Detroit • Jacksonville
Columbus • Fort Worth • Tampa • Cincinnati • Dallas • Des Moines • Oklahoma City
Greenville • Portland • St. Louis • San Antonio • Memphis • Kansas City • Bogalusa
Milwaukee • Chattanooga • Wescaco • New Haven • Appleton • Hickory • Greensboro • Sumter



Why talk about a pig's shoulder to you?

In testing meat can-linings, pork shoulder is unique.

The pork shoulder combines fats and other chemicals, including sulphur-bearing materials, whose action upon the enamel is unusually severe.

As you know, cans are filled, closed, put in a retort, and the heat is turned on.

Since the heat in the retort travels slowly through the pork shoulder, the container must be held at a high heat for a long time to get the center of the package at the proper temperature.

In this test, the enamel lining on the inside of the can takes an extra-special

beating. It's the kind of tough workout American Can scientists like as a test for can-linings.

That's why pork shoulder is a favorite and standard test-pack at our Central Research Laboratories, Maywood, Illinois.

You can see from this instance that quality control at Maywood is no "ivory tower" process. In fact, linings, adhesives, steel, tin plate, solder, seams, and paper—components of the merchandise we sell you—are all subjected to appropriate, realistic tests.

You get an extra dividend from these

tests, too. For the wide margin of safety in Canco containers has through the years given meaning to the statement: "No other container protects like the can."

CANCO

AMERICAN
CAN COMPANY

New York • Chicago • San Francisco

NO OTHER CONTAINER PROTECTS LIKE THE CAN





are you packaging an *Heirloom?*?

THE watch, clock, jewelry and silverware industries are shipping today heirlooms of tomorrow. These industries were the first to recognize the sales value of set-up boxes. Today 150 million such containers package these important luxury products. A recent questionnaire of the entire industry showed that the overwhelming preference for set-up boxes was determined by "high protective qualities plus great variety of design and beauty". In an era in which palladium is

competing favorably with platinum, sales preferences go to set-up boxes.

If it's product protection, display appeal, re-use value or simple "take-home" economy you require, a set-up box will give you these added advantages without additional expense.

Write to the National Paper Box Manufacturers Association for survey no. 78, "Jewelry and Silverware", compiled by the Postwar Planning Committee.



NATIONAL PAPER BOX MANUFACTURERS
Association

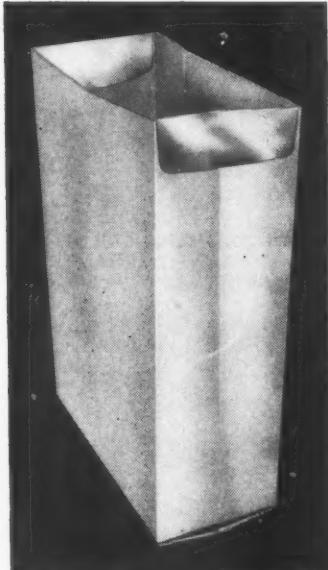
AND COOPERATING SUPPLIERS

Liberty Trust Building • Philadelphia 7, Penn.

FOR INFORMATION OR SERVICE • CONSULT YOUR NEAREST SET-UP BOX MANUFACTURER

CAVEAT NON EMPTOR

*We have put
the negative in
the old Latin
Proverb . . .*



THE CORNERS ARE THE POINTS TO WATCH!

Each side of Flav-O-tainer is indented vertically by an accordion tuck. A patented cut out of the outer wrapper at the top of each tuck exposes the liner. This liner when heat-sealed, fuses six separate surfaces into one solid unit. Result—a multiple sealing that neither moisture, nor air can penetrate. No other container gives you such complete protection at the vulnerable points.

TODAY neither packer, retailer nor consumer need beware. They may all buy with full confidence.

Dried fruits, dehydrated foods, frozen foods, and other perishable products, when packed in the Flav-O-tainers lined with Pliofilm or any other film, foil or laminated structure suitable to the product, remain in precisely the same condition for weeks . . . months . . . even years.

Because of their superior product-keeping qualities, the use of Flav-O-tainers results in increased demand and greater consumer satisfaction.

You can have all these advantages in your new product packaging or in the repackaging of your present line. Call or write today if you would like our representative to call on you with samples.

T H O M A S M *Royal* & C O M P A N Y
SAN FRANCISCO PITTSTURGH
NEW ORLEANS BRYN MAWR
SYRACUSE WASHINGTON, D.C. ST. LOUIS
5800 N. SEVENTH STREET
PHILADELPHIA 20, PENNA.
SEATTLE ATLANTA DENVER
NEW YORK DAYTON BOSTON
BEAUMONT DETROIT
CHICAGO

IN CANADA: E.S. and A. Robinson (Canada) Limited, Leaside, Toronto

HOW THE BLADE
that isn't there
 WORKS TOP-SEALING "MAGIC"
 WITH *Staples*

Several times more corrugated shipping containers are stapled by the average operator . . . when Bostitch Autoclench races a blade-equipped machine. Compared with other sealing methods . . . hand-applied glue, tape, etc. . . . the advantages also favor Autoclench Bostitching.

This outstanding example of how "Bostitch fastens it better, faster with wire" derives its superiority from the fact that a unique pre-formed staple is driven and clinched *without the use of a sealing blade*. The design of the staple and the mechanism of the machine combine to effect a quick, tight closure — "drum and drop test" proven.

Investigate Autoclench now. Send for Folder 132.

AUTOCLENCH ADVANTAGES

Quick operation . . . Secure seal . . . Human error minimized . . . Won't obscure printing . . . No drying time . . . Discourages pilfering . . . Unaffected by moisture . . . No damage from staining . . . Staples removable for container reuse . . . Economical to buy and operate.

BOSTITCHING
 offers you the **MOST** in stapling

Experience... **1896** 50 years specializing in fastening

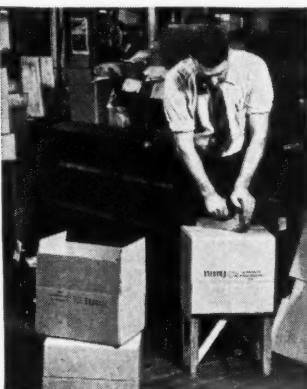
Engineering... **800000000** 18 research engineers

Selection... **111111111** Nearly 800 models

Service...  91 offices, over 200 Bostitching specialists — increasing as products and trained men become available.



Autoclench bottoming empty containers over a form.



New Motorized Autoclench — available soon.

Bostitch (Boston Wire Stitcher Co.),
 502 Mechanic Street, Westerly, R.I.
 Bostitch-Canada, Ltd., Montreal.

Please send Folder 132 on Bostitch Autoclench.

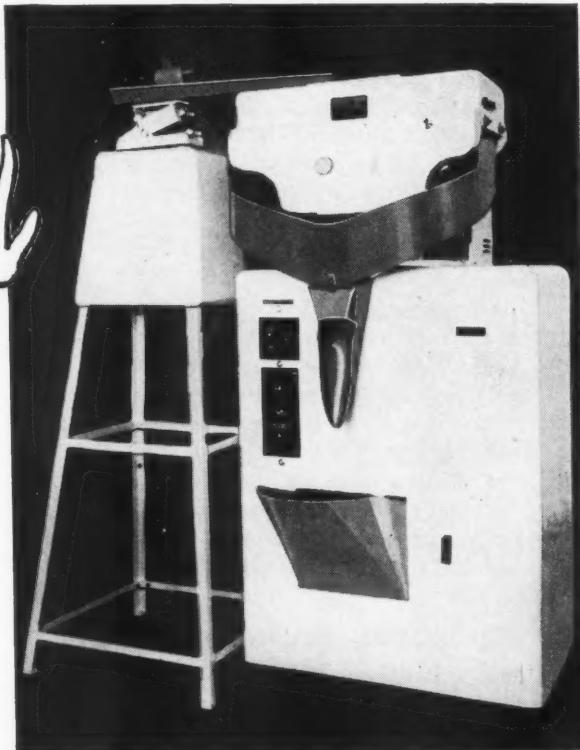
Name.....

Company.....

Address.....

Take A Tip From A Potato Chip . . .

Weigh Your Product Faster, More Accurately With WRIGHT'S NEW HY-TRA-LEC Automatic Weigher!



Gordon Foods Tested One...Bought 14!

Potato chips are among the most difficult products to handle. But this new Wright machine automatically weighs them with an accuracy and speed previously unattainable with a single weighing unit.

GORDON FOODS of Atlanta tested one . . . bought 14! Similar enthusiastic reports are coming from leading food manufacturers everywhere.

A new method of weighing is used. It's called Hy-Tra-Lec. The model illustrated was designed specifically for weighing potato chips and like products.

Other models will weigh a wide variety of products, both free flowing and non-free flowing, in charges at pre-determined net weights ranging from 1/8 of an ounce to one pound.

Your packaging and production chiefs are invited to observe test runs on your own products. Check for yourself. Use your own figures. See how quickly this new method of weighing will pay for itself in your plant.

Literature is available. Don't wait to hear about Wright's new Hy-Tra-Lec weighers from competition. Investigate now.

**WRIGHT'S Automatic
Machinery Company ***

DURHAM, NORTH CAROLINA

"Pioneers Since 1893 In Automatic Packaging Machinery"



Package
YOUR Beautifuls
in *Champion*
Kromekote

THE CHAMPION PAPER
AND FIBRE COMPANY
HAMILTON, OHIO



District Sales Offices: NEW YORK • CHICAGO • PHILADELPHIA • DETROIT • BOSTON • ST. LOUIS • CINCINNATI • ATLANTA • SAN FRANCISCO

WIRZ Mono-Pak

**SINGLE-USE TUBE—IDEAL SAMPLING AND DISPENSING
UNIT FOR YOUR PEACE-TIME PRODUCTS**



Easy to open—easy to use—safeguards flavor, consistency—assures exact dosage

Individual portions of coffee, dehydrated soups, juices, pastes, hydroscopic powders and granular products, ointments, and toilet preparations will be more acceptable to your Peace-time markets in sanitary, convenient WIRZ Mono-Pak single-use collapsible metal tubes. Hermetically sealed, non-refillable, economical, WIRZ Mono-Pak Tube preserves your product's original freshness, purity, consistency, flavor, or scent. Prevents substitution, dispenses exact quantity. Product reaches your cus-

tomer in perfect condition. Easy to open, easy to use, WIRZ Mono-Pak Tube can be attractively decorated. Requires no labeling or capping. This unusual merchandising tube for liquids, pastes and powders should be in your Peace-time packaging and sampling plans. WIRZ Tubes are practical in different sizes for a variety of products . . . with suitable linings to combat corrosion and seepage. Count on WIRZ Tubes to protect your product, your brand name and your markets.

A. H. WIRZ, INC.

Established 1836

Fourth & Cole Sts.
CHESTER, PA.

**COLLAPSIBLE METAL TUBES • LACQUER LININGS • WAX LININGS • WESTITE CLOSURES
HOUSEHOLD CAN SPOUTS • COMPRESSION MOLDING**

New York 17, N.Y.
50 E. 42nd St.

Chicago 4, Ill.
80 E. Jackson Blvd.

Memphis 2, Tenn.
Wurzburg Bros.

Havana, Cuba
Roberto Ortiz Planos

A. G. Spilker { Los Angeles 14, Calif., 1709 W. 8th St.
(Exposition 0178)—Also Danville, Calif.



HEEKIN
COLORS

on

METAL CONTAINERS
THAT STAY PUT

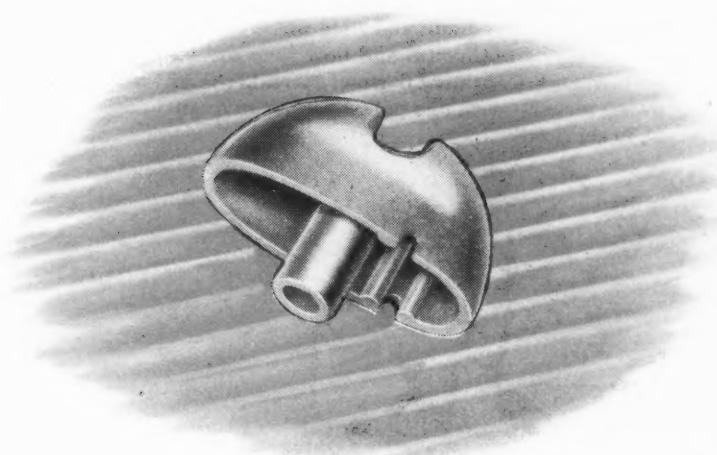


HEEKIN CANS

With Harmonized Colors

THE HEEKIN CAN COMPANY, CINCINNATI, O.

MANUFACTURED OF LITHOGRAPHED CANS SINCE 1890



SMALL PLASTICS WITH A **BIG** REPUTATION

If small plastic units play an important role in your business, investigate our production facilities.

Our automatic molding machines are ideally suited for low-cost, high-speed production of these items. Our special

experience—we turn out many millions of small plastics a year—can help solve your problems of design, cost and speed.

Write us now for further information!

LOOK FOR THIS  TRADE MARK

PLASTICS DIVISION
OWENS-ILLINOIS GLASS COMPANY
TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES



GOLLY! DID YOU SEE THIS MONTH'S CONTINENTAL AD?

It's another full-page, four-color ad in leading magazines—telling about the wide variety of products made by Continental and how they serve the nation. Watch Continental grow! It's a big family, growing bigger—with one policy—"best in quality, best in service."



**Best at the
moment of
decision!**



WHY A.C.M. CARTONS EXCEL

Whiter board—more uniform—
velvet-smooth surface—
more rigid—tougher—
better folding qualities—
greater luster and brilliance—
perfect reproduction in either
letterpress or lithography.



The Secret is in the SURFACE!

At that vital moment when shoppers become buyers, your package may be the deciding factor in their choice. That's why carton selection rates primary consideration in your sales plans. On dealers' counters or shelves it must both tell and sell to succeed in today's competition.

When your product is packaged in A.C.M. Clay Coated Cartons you can be sure that you have put your best "sales front" on display. Their pure white, velvet-smooth surface, produced by an exclusive, continuous process, enhances any design—adds brilliance and luster to either letterpress or offset reproduction.

Accurate control of every step from pulp to finished product assures more perfect cartons, planned and produced to attract shoppers and turn them into buyers!

AMERICAN COATING MILLS, INC.
America's Largest Producers of High Quality Clay Coated Cartons and Carton Board
Elkhart, Indiana • Chicago • New York
Affiliated Company: Modern Packages, Inc., Memphis, Tenn.

A.C.M. Clay Coated Cartons
and carton board



Hard, Durable, Easy-to-Handle Desiccant Protects Packaged Goods

→ A new bead-type drying agent, particularly suitable for protecting packaged goods against "in-the-package" moisture, has been developed by Socony-Vacuum. It is available now for prompt delivery.

This new desiccant—S/V Sovabead—comes in the form of tiny beads which are hard, durable, and easy to handle. Uniform in size, these beads are honeycombed with ultramicroscopic pores that suck up moisture like thirsty sponges. They are chemically inert, and consequently cannot affect packaged goods in any way.

The unique bead-type character of this new desiccant offers special advantages for packaging precision instruments, metal parts, and other products where moisture is a problem. It is particularly recommended for packaging highly finished parts where complex construction, ultimate use or other factors prohibit the application of protective films.

★ ★ ★
Ask your Socony-Vacuum Representative for additional details on applications to your individual packaging needs.



INVESTIGATE
**SOCONY-VACUUM
PROCESS PRODUCTS**
Research and Service

What's New in Petroleum for PACKAGING!

FROZEN FOODS

S/V Microcrystalline Waxes
Impart flexible moisture-vapor proof coatings.

DEHYDRATED FOODS

S/V Microcrystalline Waxes
When used as coatings, keep contents dry.

CONTAINER LININGS

S/V Microcrystalline Waxes
Protect interiors of barrels, drums, tank cars.

BEER CANS

S/V Petrosenes
Give flexible inert linings.

HEAT-SEALING Special Waxes

Produce tough, tenacious seals on paper.

EXPLOSIVES

S/V Waxes, Petrolatums
Waterproof and seal dynamite sticks.

HYDROFLUORIC ACID S/V Cereze Waxes

Add strength to waxes used for containers.

RUST PREVENTIVES S/V Sova Kotes

Keep metals from rusting in storage.

SOCONY-VACUUM OIL CO., INC.
26 Broadway, New York 4, N. Y.,
and Affiliates:
Magnolia Petroleum Company,
General Petroleum Corporation.



"Package by Inland"

Designed—To properly protect *Your*
product—To meet conditions in *Your*
Plant—To withstand the handling in
Your distribution problem.

INLAND
CONTAINER CORPORATION
Corrugated Fibre Boxes



INDIANAPOLIS, INDIANA • EVANSVILLE, INDIANA • MIDDLETOWN, OHIO • CINCINNATI, OHIO
DAYTON, OHIO • CHICAGO, ILLINOIS • MILWAUKEE, WISCONSIN • DETROIT, MICHIGAN

The Patapar Keymark



5 words...millions have read them

**“Protected
by
Patapar*
Vegetable
Parchment”**

The Patapar Keymark is nationally advertised. Millions of women have seen it in magazines. And when they see it on food wrappers, they know the product inside is well protected...because Patapar has high wet-strength, resists grease, and is pure in texture.

If you use printed Patapar we'll include the Keymark on your printed wrappers...

at no extra cost to you. It's a way you can impress customers that your product is well protected.

The printing of Patapar is done in our own plants. Here we have complete modern equipment for printing Patapar in one color or several colors — by letterpress or offset lithography. We handle every detail.

*Reg. U. S. Pat. Off.

Paterson Parchment Paper Company • Bristol, Pennsylvania

Headquarters for Vegetable Parchment Since 1885

WEST COAST PLANT: 340 BRYANT STREET, SAN FRANCISCO 7, CALIFORNIA
BRANCH OFFICES: 120 BROADWAY, NEW YORK 5, N. Y. • 111 WEST WASHINGTON ST., CHICAGO 2, ILL.



ALL SAFE TO PACK IN ALUMINUM TUBES

And hundreds of other creams, ointments, and jellies, right down to "Z" for Zinc Ointment, are being safely packed in Alcoa Aluminum Tubes.

These tubes are strong, easy to squeeze, and will take a *lot* of squeezing. They keep your products in tiptop shape, and can be beautifully decorated in clean-cut designs to give your package eye-appeal and sales punch.

Give us time to run tests at the Alcoa Packaging Laboratories on samples of *your* creams and semi-liquids packed in *our* tubes. It may be that you can use plain

Alcoa Aluminum Tubes—or we may suggest that you use *inside-coated* Alcoa Tubes just to make double sure. After our tests, you'll have the answer on the *right* Alcoa Aluminum Tube for your product.

The long list of pharmaceuticals, foods, cosmetics, and industrial products now being packed safely in Alcoa Tubes is yours for the asking. Write to **ALUMINUM COMPANY OF AMERICA**, 2129 Gulf Bldg., Pittsburgh 19, Penna. Sales offices in leading cities.



ALCOA ALUMINUM TUBES

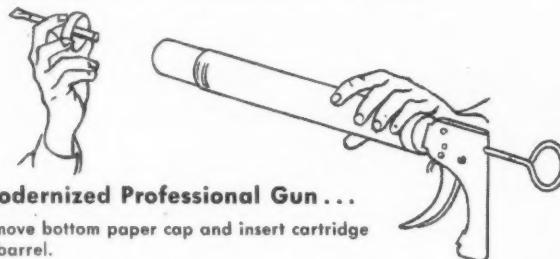
A Bull's Eye for Sefton

CAULKING CARTRIDGE CAN

for BATTENFELD
GREASE AND OIL CO.
(KANSAS CITY, MO.)



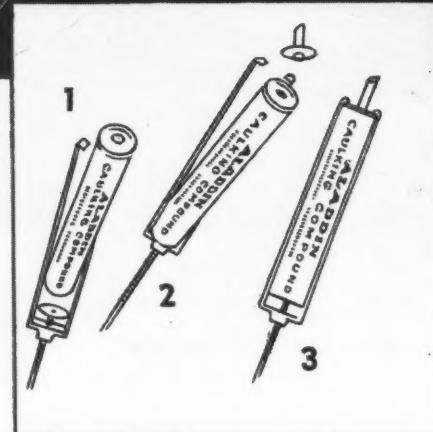
Sefton hits the mark again! Striving always to create cans to fit specific needs, Sefton has designed with and for the Battenfeld Grease and Oil Corporation of Kansas City, Missouri, a new and better cartridge for caulking compound. This cartridge not only eliminates the fuss and mess of using bulk compound, but delivers the compound in a completely protected package ready for instant use with a provision for the storing of the unused portion. Metal plug in top gives easy opening...simple positive reclosure...complete air protection and precision fit of special Battenfeld adaptor feature on gun.



For Modernized Professional Gun ...

1. Remove bottom paper cap and insert cartridge in barrel.
2. Remove metal plug and attach gun cap with special Battenfeld adaptor.
3. Gun ready for use.

DISTRICT OFFICES: • Los Angeles • San Francisco • Denver • Tampa • Chicago • Des Moines • New Orleans • Boston • Detroit • Kansas City • St. Paul
Omaha • New York • Cincinnati • Cleveland • Oklahoma City • Pittsburgh • Memphis • Nashville • Dallas • Houston • Salt Lake City • Seattle



For BATTENFELD Economy Home Use Gun ...

1. Remove bottom paper cap from cartridge and insert plunger.
2. Remove metal plug and insert nozzle with special adaptor.
3. Tighten handle—Gun ready for use.



There is nothing
quite so fine

REMBRANDT PAINTINGS



ALUMINUM FOIL

Higher perfection prompted the inception of this company by men long experienced in the manufacture of foil. Basic, revolutionary improvements in machines and processes were originated tested and perfected.



COCHRAN FOIL COMPANY, INC., LOUISVILLE 10, KENTUCKY



FOOD AND GENERAL PURPOSE CONTAINERS



DRUG AND CHEMICAL CONTAINERS



LIQUOR BOTTLES



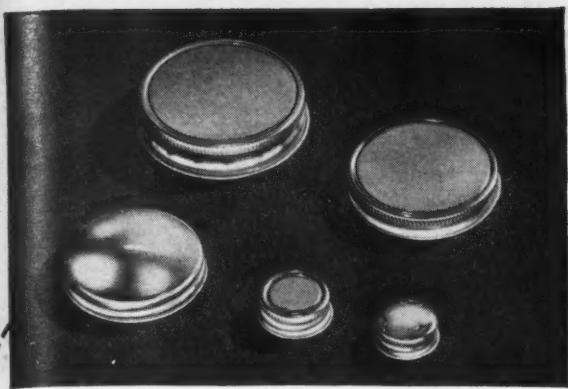
WINE BOTTLES



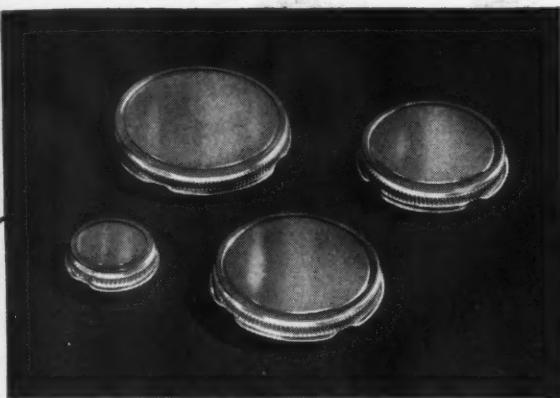
BEER BOTTLES



AIRTIGHT MOLDED SCREW CAPS



AIRTIGHT METAL SCREW CAPS



AIRTIGHT LUG CAPS



VACUUM CAPS

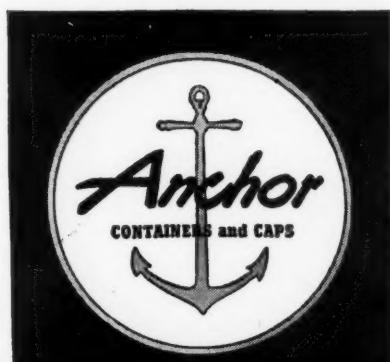
No matter what you pack—
You may pack solids, semi-solids, powders, liquids. You may pack foods, drugs, medicinals, chemicals, household and industrial products. Or cosmetics, perfumes, toiletries, beverages....

And no matter how you pack it—

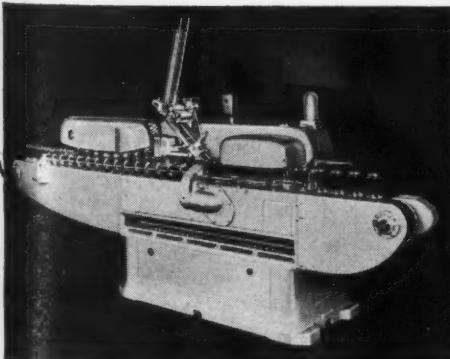
You may pack hot or cold, with or without vacuum, sterilized or processed. Your production requirements may be anywhere from 30 to 500 packages a minute....

Yes, no matter what you pack or how you pack it—Anchor Hocking makes a container, a closure, and a sealing machine that will most completely satisfy your diverse needs.

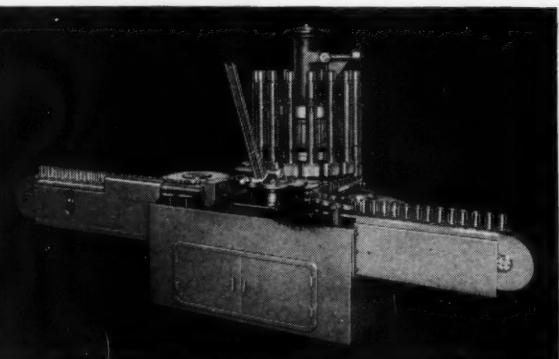
Tell us what you pack. How you pack it. Without bias or obligation we will recommend a container, closure, and sealing machine which will efficiently and economically answer your needs.



PRODUCTS OF
ANCHOR HOCKING GLASS
CORPORATION
LANCASTER, OHIO



Steriseal



16 Spindle Rotary

ANCHOR SEALING MACHINES

Tune in "Crime Photog-
rapher" every Thursday
evening, entire Coast-to-
Coast Network, CBS.

Craftsmanship



NOBLE



ESTABLISHED 1876

Manufacturers of
JEWELERS' FINDINGS AND SOLDERS
PRESENTATION BOXES
TROPHIES • MEDALS • BALL CHARMS

F. H. NOBLE & COMPANY 559 West 59th Street Chicago 21, Illinois

Substitution Safeguard



Another reason for **CEL-O-SEAL**

REG. U. S. PAT. OFF.

All waters look alike . . . but they don't all have the qualities of Mountain Valley Mineral Water. To assure their customers of getting the genuine product, the bottlers of this fine water seal their bottle with a Du Pont "Cel-O-Seal" band.

Protection against substitution and tampering is part of the all-round advantages of "Cel-O-Seal" bands. They guard against leakage and contamination . . . supply a colorful, eye-catching advertising message.

"Cel-O-Seal" cellulose bands are manufactured by E. I. du Pont de Nemours & Co. (Inc.), Wilmington, Del. Also sold by Armstrong Cork Co., Lancaster, Pa., and I. F. Schnier Co., San Francisco, Cal.



DU PONT "CEL-O-SEAL" BANDS

BETTER THINGS FOR BETTER LIVING
... THROUGH CHEMISTRY



FOR FILLING

The Spice of Life

STOKES & SMITH

EQUIPMENT IS PREFERRED

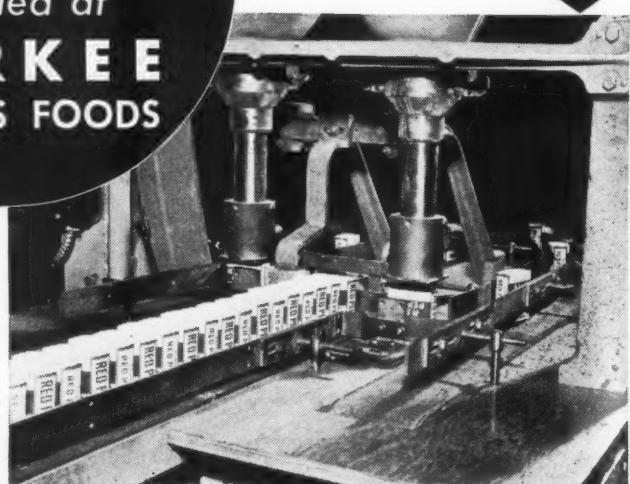


Illustration shows Model HG 84
Automatic Duplex Filling Machine

S&S

DUPLEX AUTOMATIC
FILLING MACHINES
installed at
DURKEE
FAMOUS FOODS

A close-up view showing
Duplex Auger Feed



STOKES & SMITH COMPANY

FRANKFORD, PHILADELPHIA 24, U.S.A.

FILLING • PACKAGING • WRAPPING MACHINES

Speeds to suit your needs — 15 - 30 - 60 - 120 per minute

BETTER MACHINES FOR BETTER PACKAGES

NEVER HEARD OF MVT

... but she knows when it's too high



Her taste tells her when frozen foods have lost their flavor and moisture through wraps with high MVT... high *moisture-vapor transmission*.

Alcoa Aluminum Foil provides a metal barrier to moisture—prevents drying out of frozen fruits, vegetables, meats, and other produce in storage. Flavor and goodness are sealed in *tight* when Alcoa Aluminum Foil package structures are heat-sealed.

Aluminum foil can be laminated to all types of supporting papers and synthetic sheets to provide a package structure of maximum strength, consistent with formability. And be-

cause Alcoa Aluminum is friendly to food, most produce can be packed in direct contact with the foil without danger of staining, or developing strange tastes and odors.

Leading converters of packaging materials are experts at laminating Alcoa Aluminum Foil to produce almost any wrapping combination you require. Let them work with you on aluminum foil bags, bags in cartons, and other packages for frozen foods. We'll be glad to furnish the names and addresses of these experts. **ALUMINUM COMPANY OF AMERICA**, sales offices in leading cities, or 2129 Gulf Building, Pittsburgh 19, Penna.



ALCOA ALUMINUM FOIL



There is...
something up our sleeve!

There's magic in magic . . . and there's magic in packaging, too . . . the kind of packaging that brings buying response.

But creating eye-appealing containers of distinction is more than a parlor trick . . . so when we say there is something up our sleeve we mean there's packaging skill at Warnercraft to fit your every need.

For sales "magic" . . . for packages designed for **BUYING** . . . bring your problems to Warnercraft.

Makers of set-up and folding boxes of all types, transparent acetate containers, hand made specialties, counter displays and dispensers.

THE WARNER BROTHERS COMPANY

Main Office and Factory: 325 Lafayette Street, Bridgeport, Conn.

New York Sales Office: 200 Madison Avenue, New York, N. Y.

WARNERCRAFT

"THE FINEST WORD IN PACKAGING"

Introducing Speed Wrap!

SAVES YOU MONEY!

Speed-Wrap, new semi-automatic, heat-sealing overwrapper, installs in your plant for less than one-third the cost of ordinary machines.

Speed-Wrap completely seals wax, cellophane and other heat-sealing wrappers. Special device insures complete sealing of package humps and irregularities.

Speed-Wrap requires but one operator, wraps 25 to 30 packages per minute. Easily adaptable to conveyor production. Eliminates hand wrapping.

HOWARD ENGINEERING CO., DEPT. M-10
6620½ Sunset Boulevard, Hollywood 28, California

Please send me complete information on the new Speed-Wrap machine. The package we wrap isin. xin. xin. Type of overwrap Product being wrapped

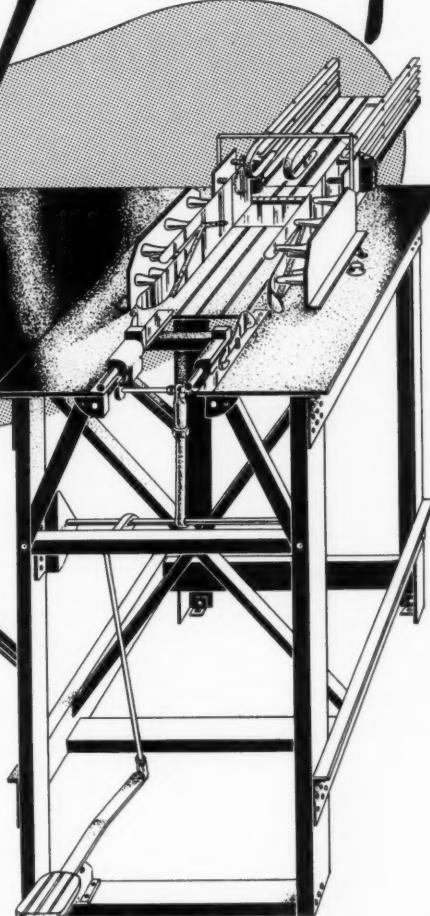
Firm Name

My Name

Address

City **Zone** **State**

**SHORT TERM
DELIVERY.
CLIP COUPON
AND WRITE
US TODAY!**



Speed-Wrap units are portable, self-contained, use any standard A. C. current. Positive thermostatic heat control.

Each Speed-Wrap unit is engineered to your needs, and assures maximum production and efficiency at low cost.

Will haircuts in tubes be next?



Laugh if you like, but no one ever thought of packaging shampoo in a tube for general use, either. No one, that is, until Raymond Laboratories of St. Paul introduced Rayve, their new cream shampoo, with results that have folks singin' in the shower. Listen:



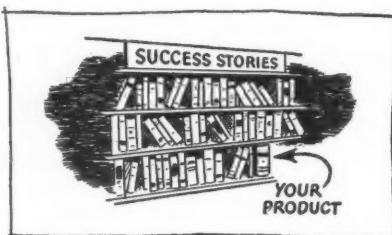
Sales figures (our favorite kind) show that consumers like the economy of being able to measure exact amounts of shampoo, instead of the wasteful drop-and-drip application associated with liquids. They like not having to grope for slippery bottles or worry about broken glass. They like, in short, the greater all 'round convenience and compactness of Rayve in its specially designed

Sun Tube—in fact, they like it so well that they've bought millions of tubes in little more than a year! A rather amazing record, don't you think, for a new product in a highly competitive field?

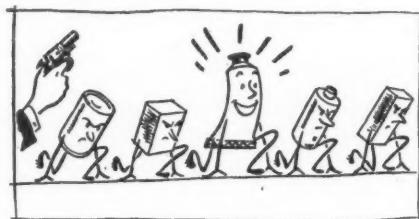


Packaging Problems in Your Hair?

...Then remember that Rayve's success story has many sequels—that new developments have made Sun Tubes the more economical, attractive container for a host of products never before considered prospects for a tube. Is your product among them?



Remember, too, that Sun Tube engineers and designers will study your *individual requirements* . . .



and bring to bear all the ingenuity and resourcefulness that assures your product perfect packaging.

And perfect packaging, in the dead-earnest race for markets that is only just beginning, may prove to be a decisive factor!



For information or advice, phone or write Sun Tube's main office, 181 Long Ave., Hillside, N. J., or our representative nearest you.

Sun Tube Corporation

HILLSIDE • NEW JERSEY



CHICAGO 1, ILL.
James L. Coffield, Jr.
360 No. Michigan Avenue

LOS ANGELES 27, CALIF.
R. G. F. Byington
1260 North Western Ave.

ST. LOUIS 1, MO.
M. P. Yates
Arcade Building

ST. PAUL 1, MINN.
Alexander Seymour
615 Pioneer Building

CINCINNATI 8, OHIO
Ralph H. Auch
3449 Custer Road



**JUST
PUBLISHED!**

Eight page, illustrated booklet describing the many packaging applications for LUMARITH transparent film: transparent bags, wraps, window boxes, transparent rigid containers and laminated cartons . . .

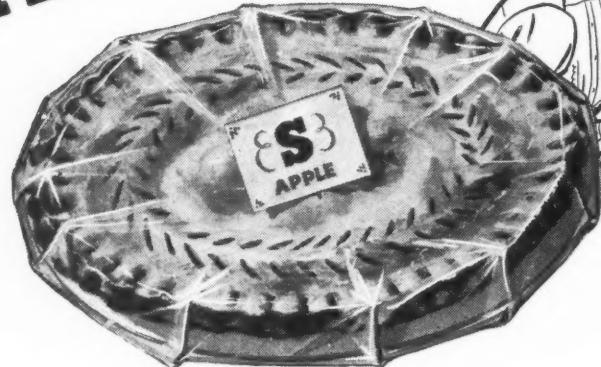
Includes table of mechanical properties, and area conversion table for LUMARITH films of all thicknesses. Get your copy by writing to: Transparent Films Department, Celanese Plastics Corporation, a division of Celanese Corporation of America, 180 Madison Ave., New York 16, N. Y.

*Reg. U. S. Pat. Off.

A Celanese* Plastic FOR PACKAGING AND OTHER PURPOSES

It's SYLVANIA for Cellophane!

... and pie



... and
ham-on-rye!



BEAUTIFUL, YES! But Sylvania Cellophane offers much more than beauty to the products it packages. This shimmering wrap protects against air, dust and moisture... seals flavor and freshness in... keeps candy, pastries, frozen meat, cigarettes and many other products in tip-top condition.

Today's Sylvania Cellophane not only looks better than ever before, but it offers broader, functional qualities, too. As time goes on you can expect even larger quantities to be made available for an even greater variety of packaged products.

SYLVANIA CELLOPHANE

Made only by **SYLVANIA INDUSTRIAL** Corporation
Manufacturers of cellophane and other cellulose products since 1929

General Sales Office: 122 E. 42nd St., New York 17, N.Y. ★ Plant and Principal Office: Fredericksburg, Va.



• Registered Trade Mark

Saving

... will pay for equipment

in less than 6 months



TELEPHONES: CANAL 5592-2593-2594

MANUFACTURERS AND DISTRIBUTORS OF
SPUDS POTATO CHIPS
AND OTHER QUALITY FOOD PRODUCTS

715-725 W FIFTEENTH STREET • CHICAGO 7, ILLINOIS

Triangle Package Machinery Company
906-924 North Spaulding Avenue
Chicago 51, Illinois

Gentlemen:

Attached is our order for three more of your automatic potato chip packing machines.

We are sending you these orders because the packaging machine you recently installed for us has been so satisfactory that we feel we can no longer afford to pack by hand. The savings in labor have been so startling that we believe conservatively our savings will pay for the original cost of the equipment in less than six months. Even more important to us, however, is the fact that the packing is done in a clean, sanitary manner with no breakage of potato chips.

Thank you for the splendid service you have given us.

Very truly yours,

SPUDS
Pascal Kimey



Triangle Elec-Tri-Pak Weighers
are available in automatic and semi-automatic models for weighing and filling dry products into any style container. Production ranges from 15 to 80 packages per minute. Accuracies are remarkable.

ASK FOR 20-PAGE ILLUSTRATED CATALOG.

Headquarters for high speed precision
weighing and filling machines

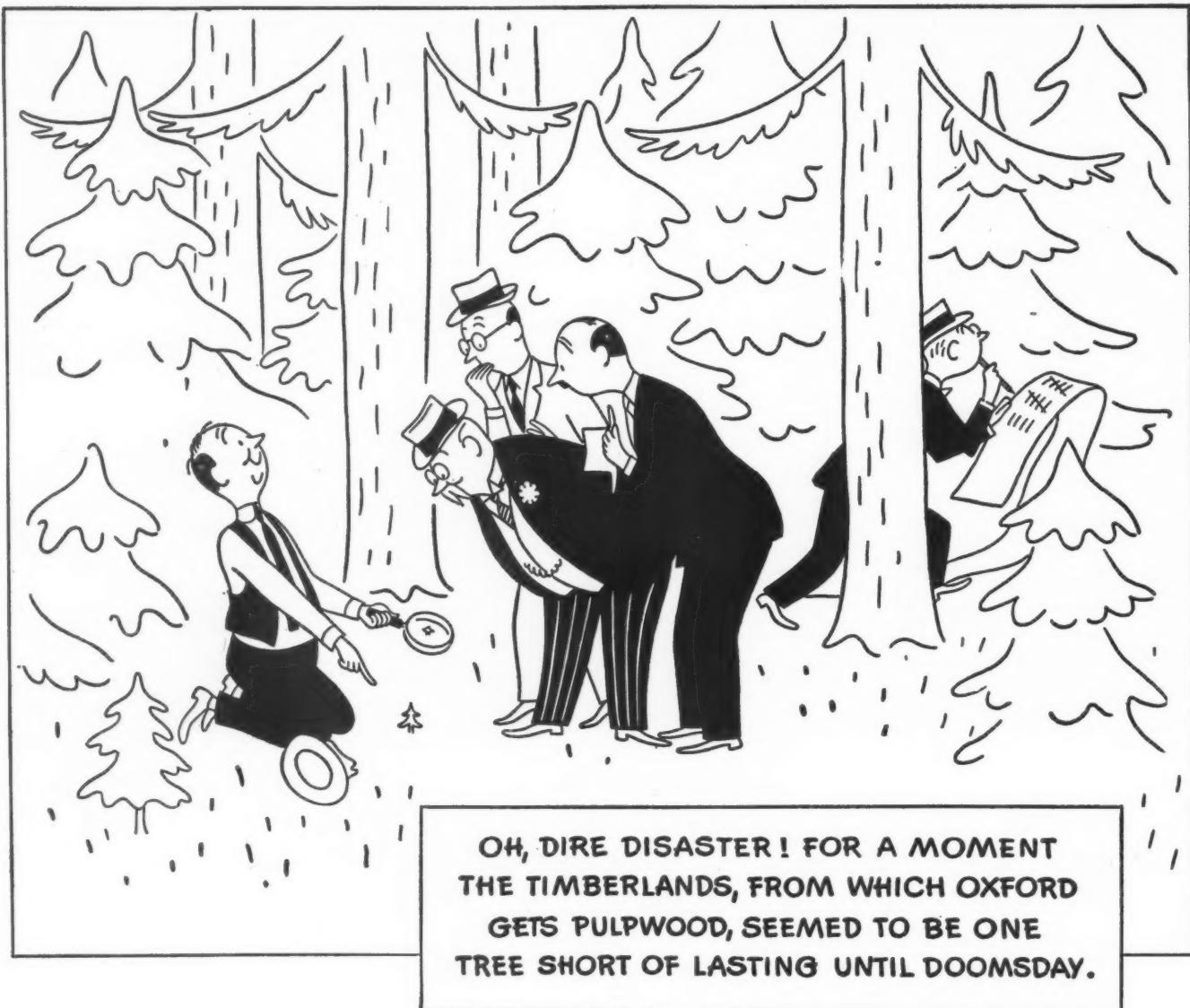
TRIANGLE

**ELEC-TRI-PAK
WEIGHERS**

TRIANGLE PACKAGE MACHINERY CO.

907 N. SPAULDING AVE., CHICAGO 51, ILL.

SALES OFFICES IN: SAN FRANCISCO; BIRMINGHAM; DENVER; CLEVELAND; NASHVILLE; DALLAS; MEMPHIS; NEW YORK; NORTH QUINCY, MASS.; MONTREAL, CANADA; MEXICO



OH, DIRE DISASTER! FOR A MOMENT
THE TIMBERLANDS, FROM WHICH OXFORD
GETS PULPWOOD, SEEMED TO BE ONE
TREE SHORT OF LASTING UNTIL DOOMSDAY.

IN making many different kinds of printing papers, Oxford uses tremendous quantities of pulpwood. The right kind of wood is important.

Within a short radius of the Oxford mills at Rumford, Me., are the vast timber resources of Maine, New Hampshire and Canada. Here Oxford gets good quality spruce, fir, hemlock, poplar and hardwood pulpwood.

Thus the quality of Oxford paper begins at the very beginning—with the wood.

Other factors contribute to Oxford quality. We make our

own pulp—control every process from wood to finished paper. Oxford craftsmen have long-time "know-how" and respect for fine papers. Our research constantly seeks ways to make paper better.

Oxford has been making quality

papers since the turn of the century. For many years we've produced better than 1,000 miles of quality paper a day.

So why not think of Oxford first when the need for quality paper arises?



Included in Oxford's line of quality printing and label papers are: ENAMEL-COATED—Polar Superfine, Maineflex, Mainefold, White Seal and Rumford Litho CIS; UNCOATED—Engravatone, Carfax, Aquaset Offset, Duplex Label and Oxford Super, English Finish and Antique.

OXFORD PAPER COMPANY

230 PARK AVENUE, NEW YORK 17, N. Y.

MILLS at Rumford, Maine
and West Carrollton, Ohio

WESTERN SALES OFFICE:
35 East Wacker Drive, Chicago 1, Ill.

DISTRIBUTORS
in 48 Key Cities

got a cellophane or waxed paper labeling problem?

see what

Monsanto

Plastics Research

has done for

Hot Melt Labels

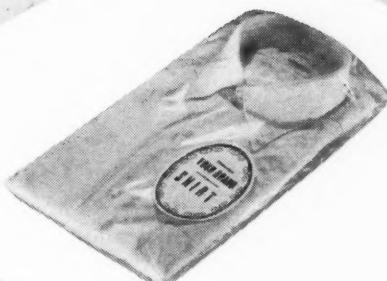
If you've been using expensive inserts, bands, glued labels or inflexible, hard-to-read printing methods for your cellophane or waxed paper wraps you'll welcome this latest development by Monsanto's plastics packaging researchers.

Here are *hot melt labels* that really hang on!...thanks to a new, better plastics coating, "engineered" to do this one job, perfectly.

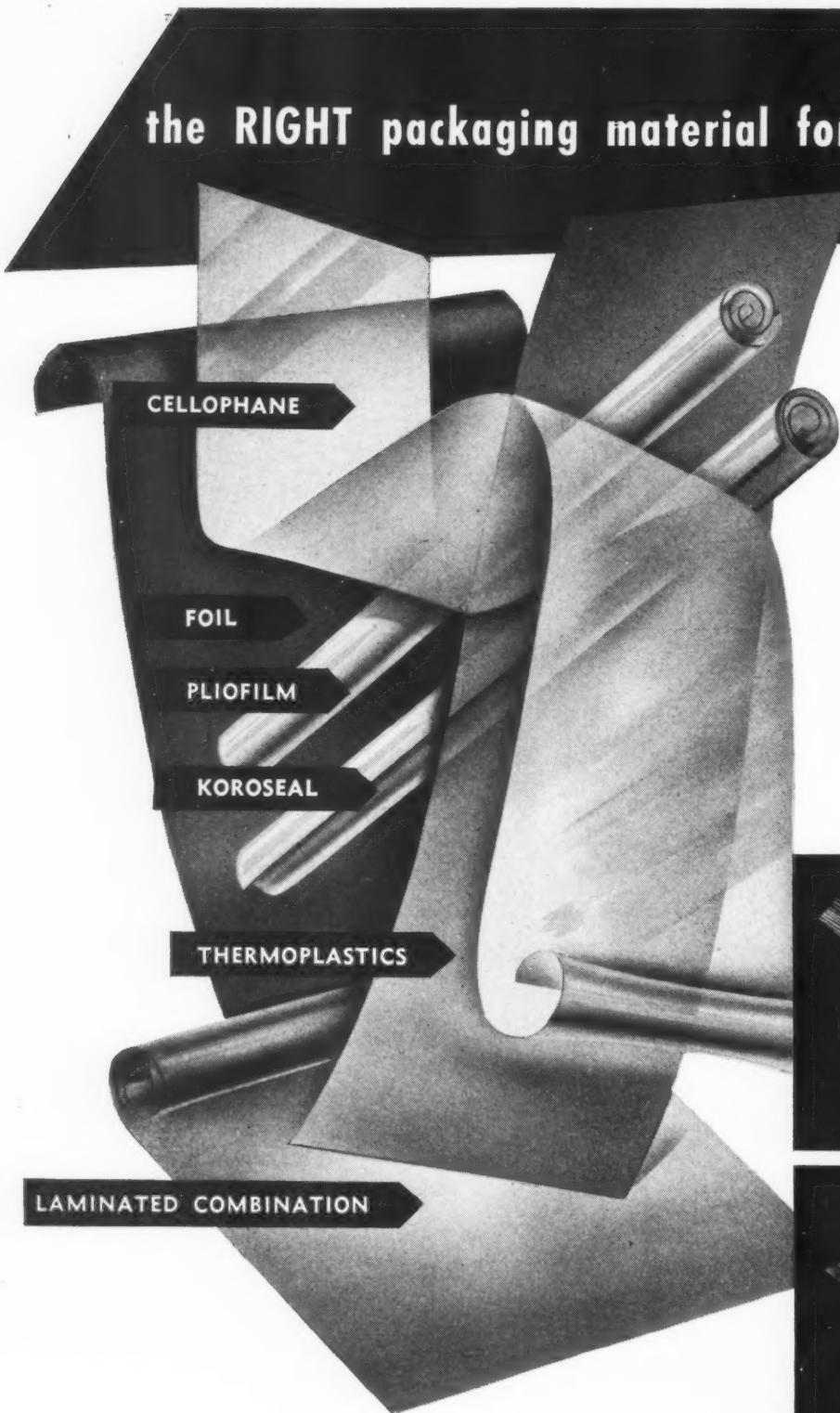
These hot melt labels end all the bother and the messy appearance of inserts...

they are quickly changed on the labeling machine for easy coding or dating... they are easy to position... they offer full opportunity for colorful, attractive designing. They are also applicable with equal success to acetate, foil, and textiles.

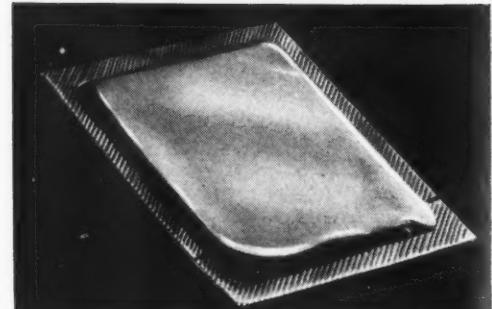
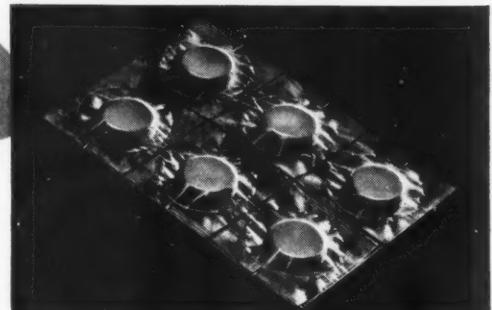
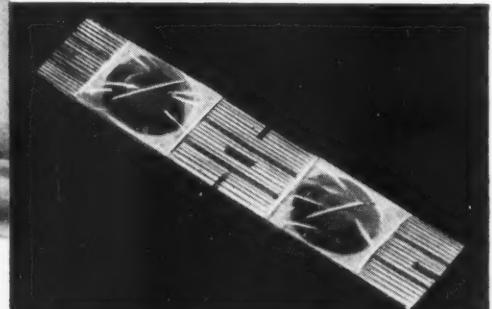
Ask your label supplier... or write direct for information. Simply address: MONSANTO CHEMICAL COMPANY, Plastics Division, Springfield 2, Massachusetts. In Canada, Monsanto Ltd., Montreal, Toronto, Vancouver.



the **RIGHT** packaging material for your product



Every product is different in formula and usage—and for each, there is a packaging material which is outstandingly satisfactory. Whether you require one of those indicated at the left, a combination of several, or one of numerous others, you will find it easily adaptable to the unique Sanitape-Sealtite method of unit-packaging. We invite you to write us regarding our findings on this important subject, and possible application to your particular problem.

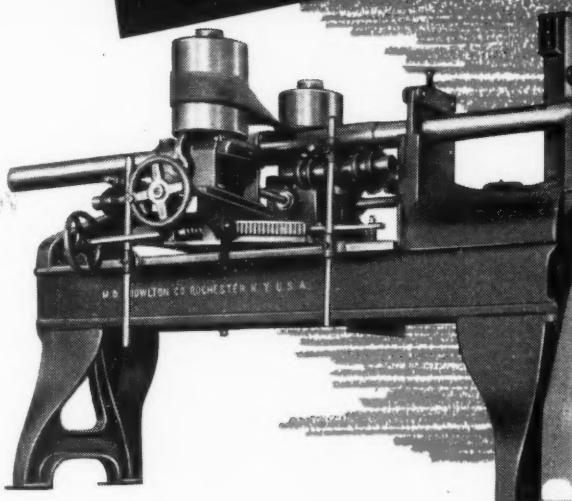


sanitape-sealtite

Sanitape-Sealtite is a unique method for packaging pills, tablets, capsules, creams and powders, by which each unit or unit-dose is sealed in its own air-tight compartment—assuring protection and maintained efficacy.

IVERS-LEE COMPANY, 215 CENTRAL AVE., NEWARK, N. J.

TUBE DESIGNED CONTAINERS

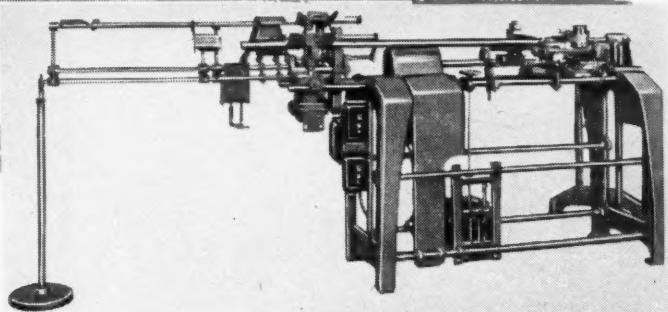


★ HAVE HIGHER MARKETING AND SHIPPING VALUE

Many containers that have served their time as well as purpose are yielding to highly adaptable spiral wound tube designs. This is especially true of containers that must be water, odor and vermin resistant, besides being strong, accurate and "hard-knock" proof. Such coated or impregnated paper containers or tubes ($\frac{3}{4}$ " to 8" diameters) can be produced at low cost on the Knowlton #4 Spiral Tube Winder, eliminating use of costlier materials and improving the

marketing and shipping value of cylindrical containers.

With the Knowlton #77 Spiral Tube Winder an almost unlimited variety of extremely strong small-diameter precision tubes, from $\frac{1}{4}$ " to 1" are produced for manufacturers of electrical apparatus, cosmetics, medical, surgical and hygienic supplies. Production records show that the versatility and economy of this winding machine is unmatched by any other on the market.



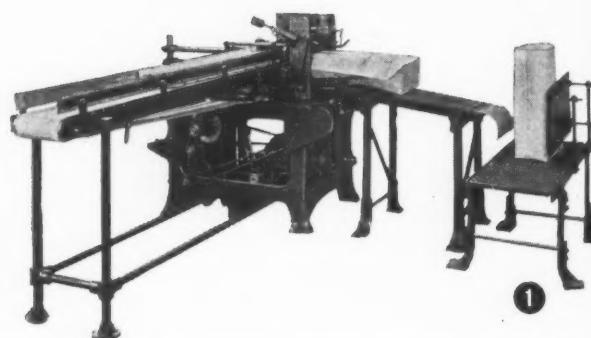
BOSTON
637 Massachusetts Ave.
(ARLINGTON)

**M. D.
Knowlton
COMPANY**

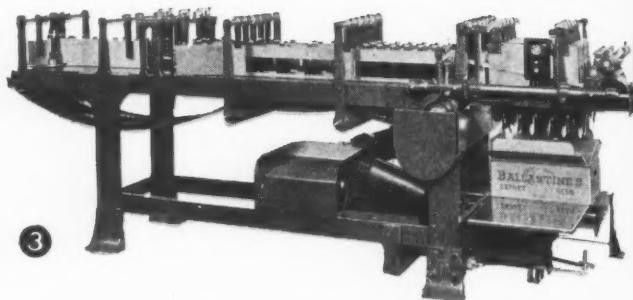
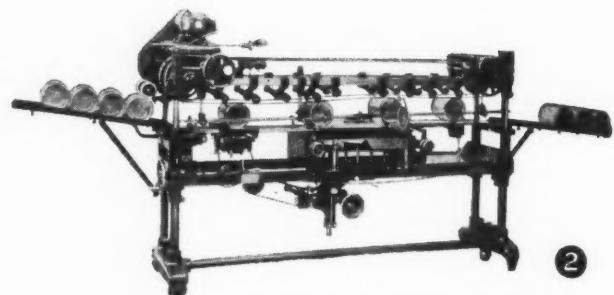
BROOKLYN 45-53 Beaver St. CHICAGO 9 S. Clinton St. TORONTO, CAN. 260 Richmond St., W.

Pacific Coast Representatives
H. W. BRINTNALL CO.
Los Angeles, San Francisco, Seattle

ROCHESTER, NEW YORK



Why are STANDARD-KNAPP MACHINES STANDOUTS?



① Bag Packer

② Labeler

③ Bottle Packer

Because—

Standard-Knapp machines stand out for their top quality performance.

They meet every type of package production requirement. Standard-Knapp case sealers, bag packers, bag fillers are built sturdy and of highest quality materials.

They are simply designed to perform essential packaging operations with automatic precision.

They operate at minimum maintenance, efficiently, economically. And Standard-Knapp machinery keeps turning out standout performance throughout its long life.

* * *

For these reasons, the packaging industry turns to Standard-Knapp engineers for their equipment, or when a new design is needed to handle some new packaging operation. Because Standard-Knapp machines are standouts, they have become standard in leading plants throughout the packaging industry.

Standard-Knapp Corp.

MANUFACTURERS OF CASE SEALING, CASE PACKAGING AND CAN LABELING MACHINES
FACTORY and GENERAL OFFICES—PORTLAND, CONNECTICUT

570 Lexington Avenue
NEW YORK 22, N. Y.

420 S. San Pedro Street
LOS ANGELES 13, CALIF.

6 Radcliffe Rd., ALLSTON 34 (Boston), Mass.

221 North La Salle St.
CHICAGO 1, ILL.

2615 Western Avenue
SEATTLE 99, WASH.

Windsor House, Victoria St., LONDON S. W. 1, ENG.

145 Public Square
CLEVELAND 14, OHIO

1204 S. W. Yamhill Street
PORTLAND 5, OREGON

Orlando, Fla.

300 Seventh Street
SAN FRANCISCO 3, CALIF.

349-350 Paul Brown Bldg.
ST. LOUIS 1, MO.

Windsor House, Victoria St., LONDON S. W. 1, ENG.

The packaging that attracts...



No matter how you phrase it, what you call it—the success back of ACE cartons is *appeal*. An attraction that can whisper or shout to compliment your product—complement your merchandising. Why not consult our design engineers about your future packaging problems? Our highly specialized Design and Creative Department is a valuable part of our integrated service.



ACE CARTON CORPORATION

5800 West 51st Street, Chicago 38, Illinois

FOLDING PAPER CARTONS • FOLDING DISPLAYS • DISPLAY CONTAINERS



TRADE-MARK EMPHASIS AT POINT OF PURCHASE

OVER THE YEARS, few advertising campaigns have approached the caliber of advertising for Coca-Cola. This advertiser has been notable for the good taste, the powerful simplicity and the consistent quality of its pictorial and story presentation. As an example, the display shown herein—for use at points of purchase—is one of many similar

items Forbes is privileged to create and produce each year for Coca-Cola. It is material such as this that has helped to merchandise *THE PAUSE THAT REFRESHES* with ice-cold Coca-Cola as an accepted national custom. Let us help you to maintain favorable recognition and acceptance of YOUR trade name and product at points of purchase and use.

FORBES
LITHOGRAPH CO.

NEW YORK CLEVELAND P. O. Box 513 Boston 2
CHICAGO ROCHESTER



WINDOW DISPLAY

Emphasis on renowned, reliable trade name;
created, produced in color by FORBES, Boston.

FORBES LITHOGRAPHY HAS BEEN VITALIZING AMERICAN TRADE-MARKS FOR 84 YEARS

for

MODERN COMMERCIAL ROTOGRAVURE



ROTOGRAVURE ENGINEERING Co.

[A Subsidiary of Miller Printing Machinery Co.]

1117 REEDSDALE STREET

PITTSBURGH, PENNSYLVANIA



Christmas **1946...**

will be a pageantry of color and design.

Beautiful boxing and packaging will
bring your products to the fore. . . .

Start with

PERFECTION DECORATED PAPERS

for packaging and display

Write us for suggestions

to suitably present your products



THIS SAMPLE: PATTERN 565-1 RUBY RED SUEDE BASE

Also available in several other color schemes

ROYAL PAPER CORPORATION

Manufacturers of Decorative Papers

210-216 ELEVENTH AVENUE • NEW YORK 1, N. Y.

Display



Every packer, every dealer knows the
value of point-of-sale display. Show cards, streamers,
counter displays, all help make the sale.

When you pack in H-A Glass Containers each package is
a point-of-sale display, but more than that, it is a
display that goes home. In the kitchen, on the pantry
shelf, in the refrigerator, your product is constantly shown
in all its goodness.



HAZEL-ATLAS GLASS CO.
WHEELING, W. VA.

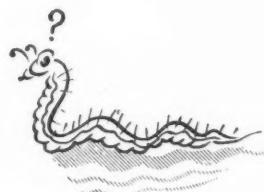
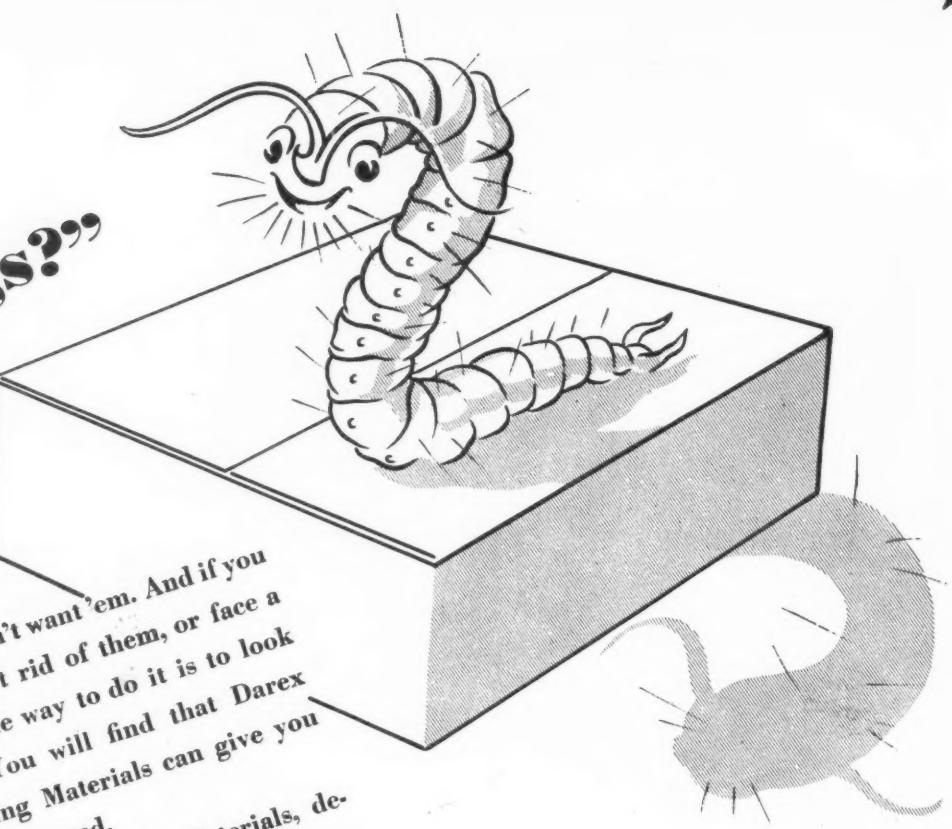
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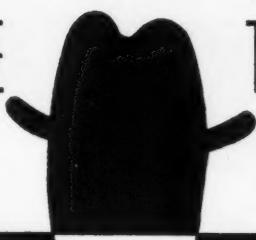
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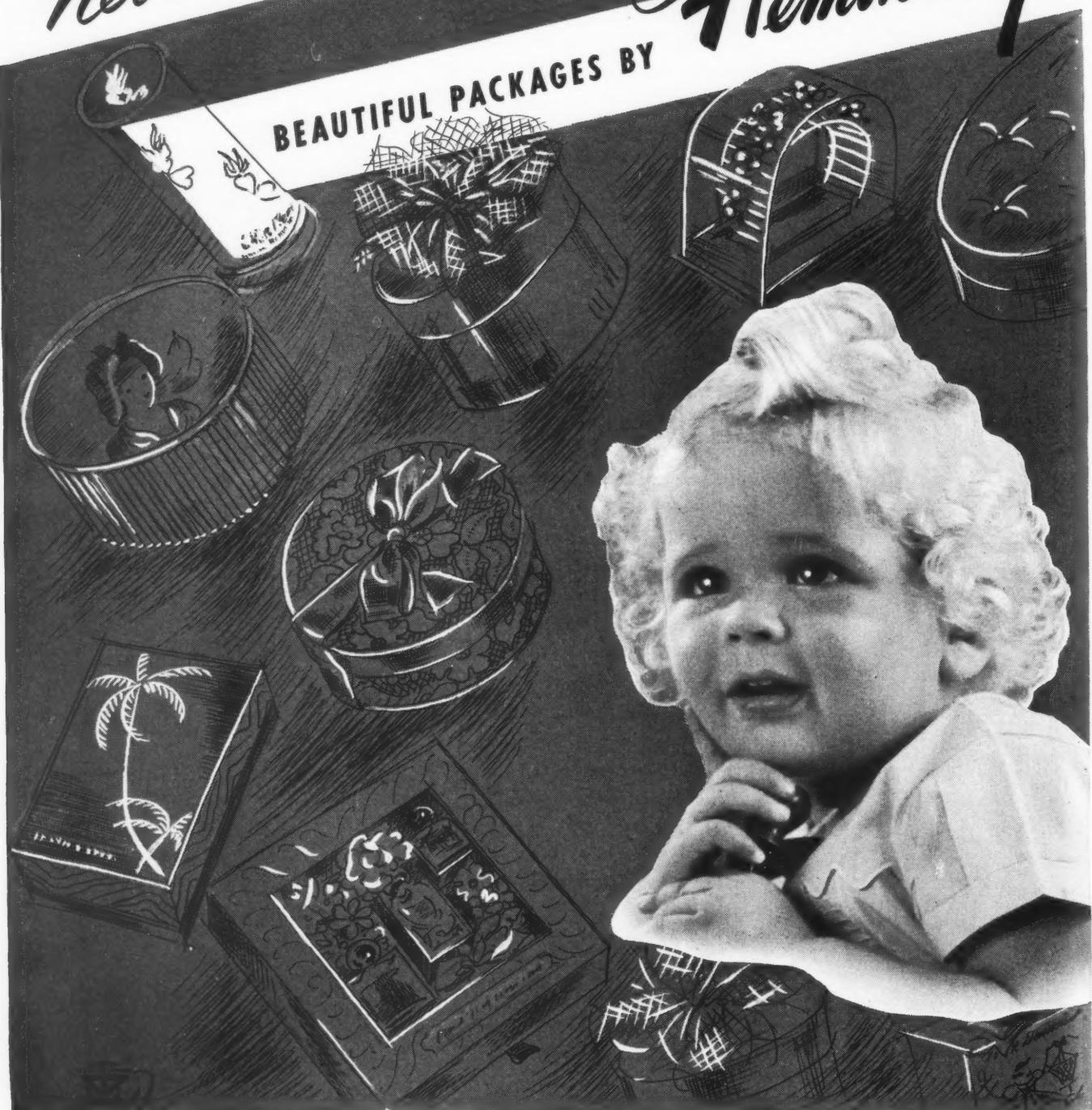
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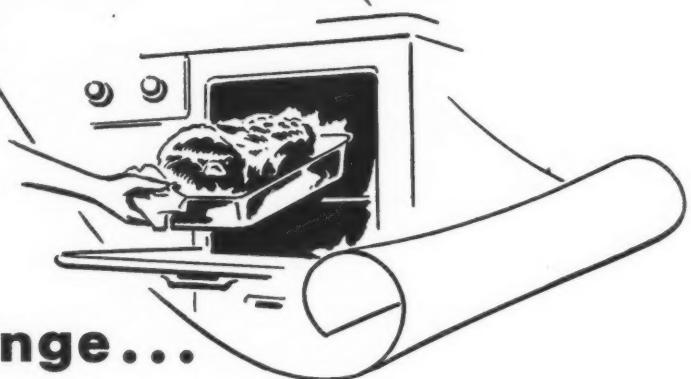


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West Carrollton GENUINE VEGETABLE Parchment



From round-up to range...

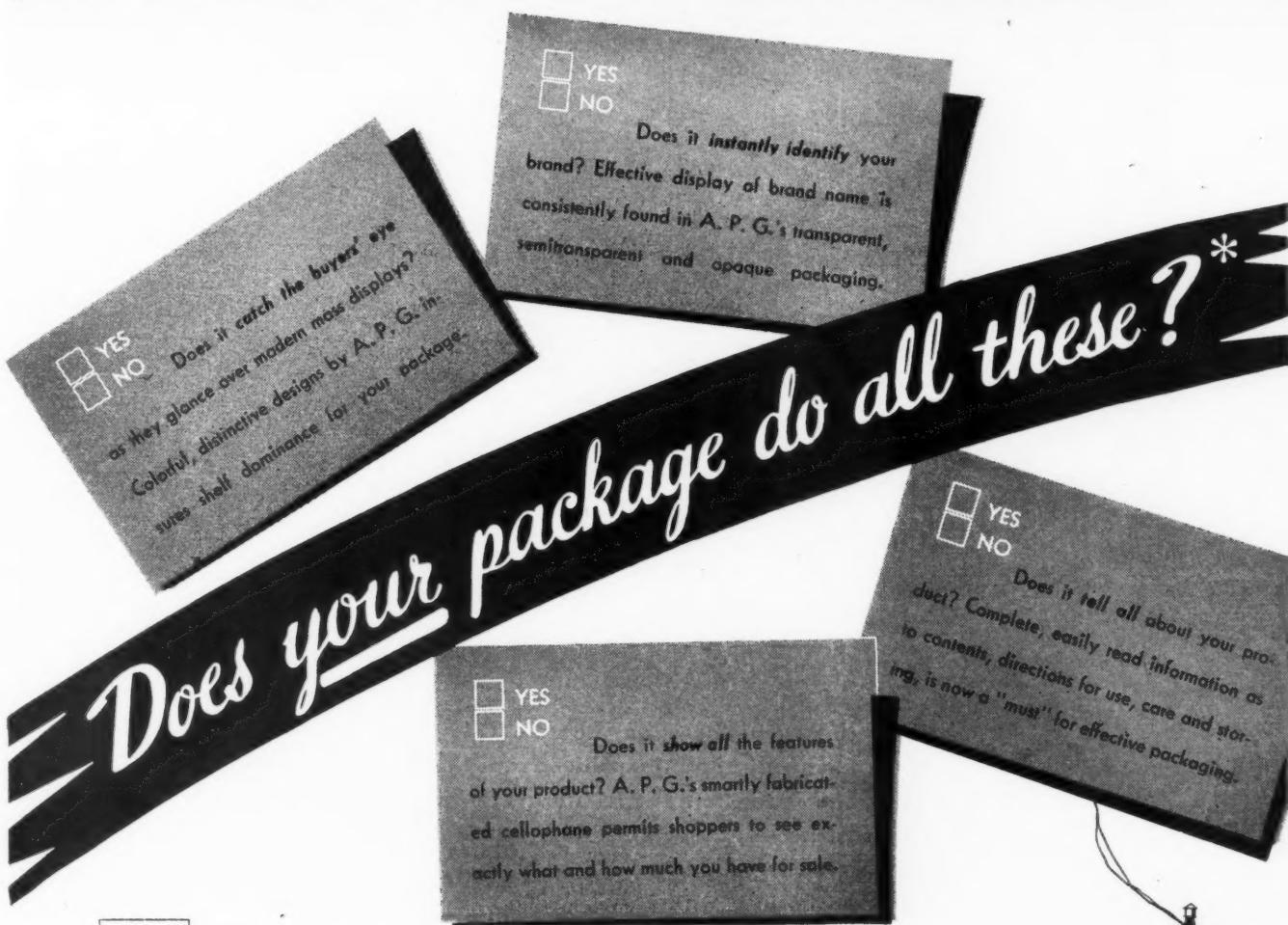
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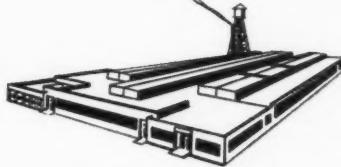
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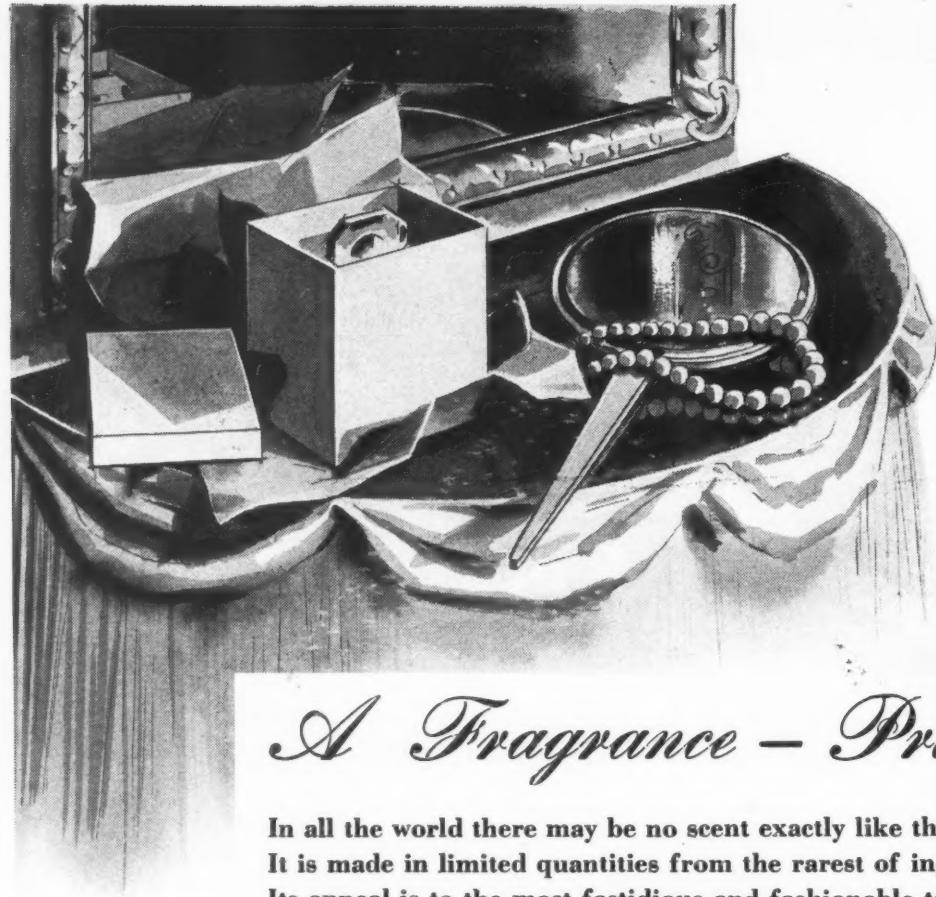


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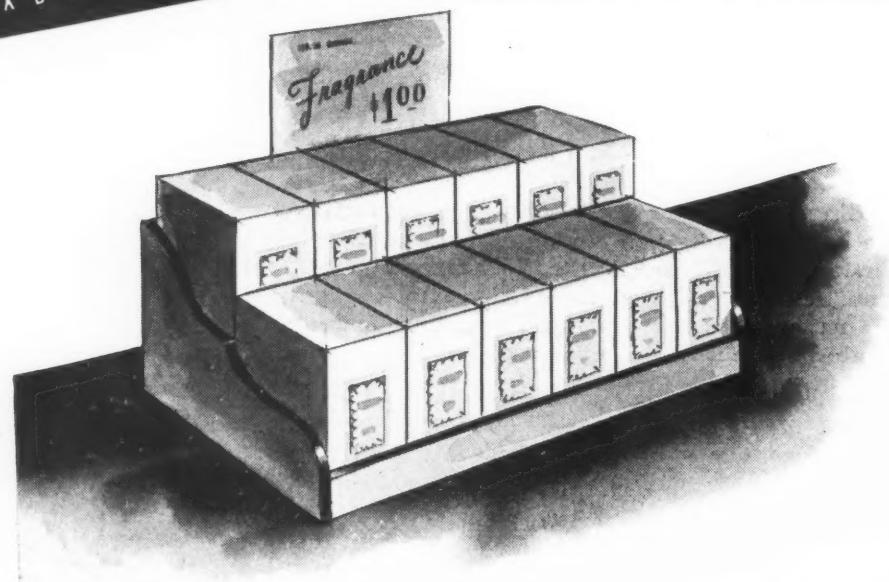
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Its appeal is to the most fastidious and fashionable taste.
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The carton is printed on
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This feature is so valuable and inexpensive—
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Be sure of fine folding cartons to keep your sales climbing.
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This is **SOLOHYDE**

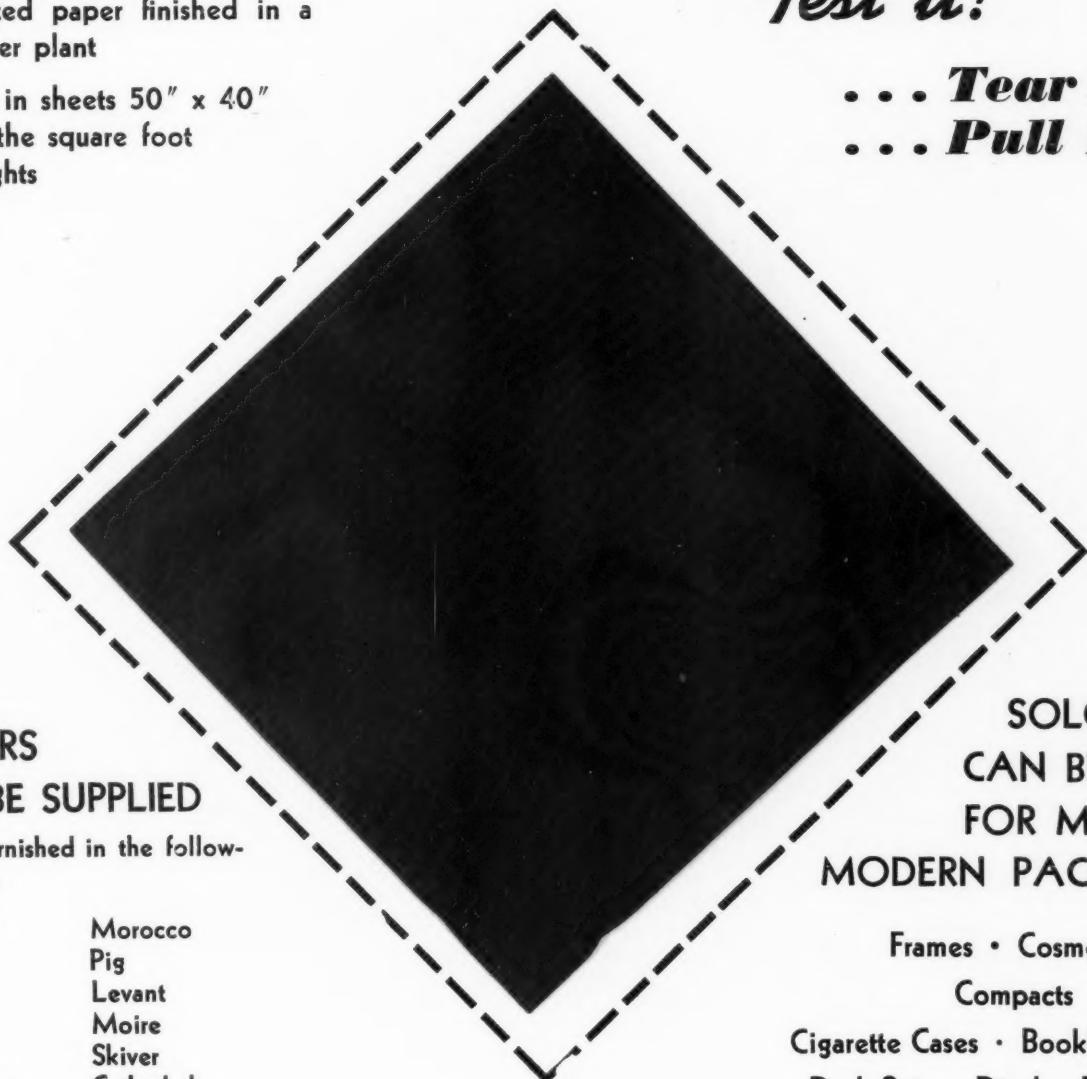
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A leatherlike finish on a base of
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real leather plant

Supplied in sheets 50" x 40"
Sold by the square foot
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**... Tear It!
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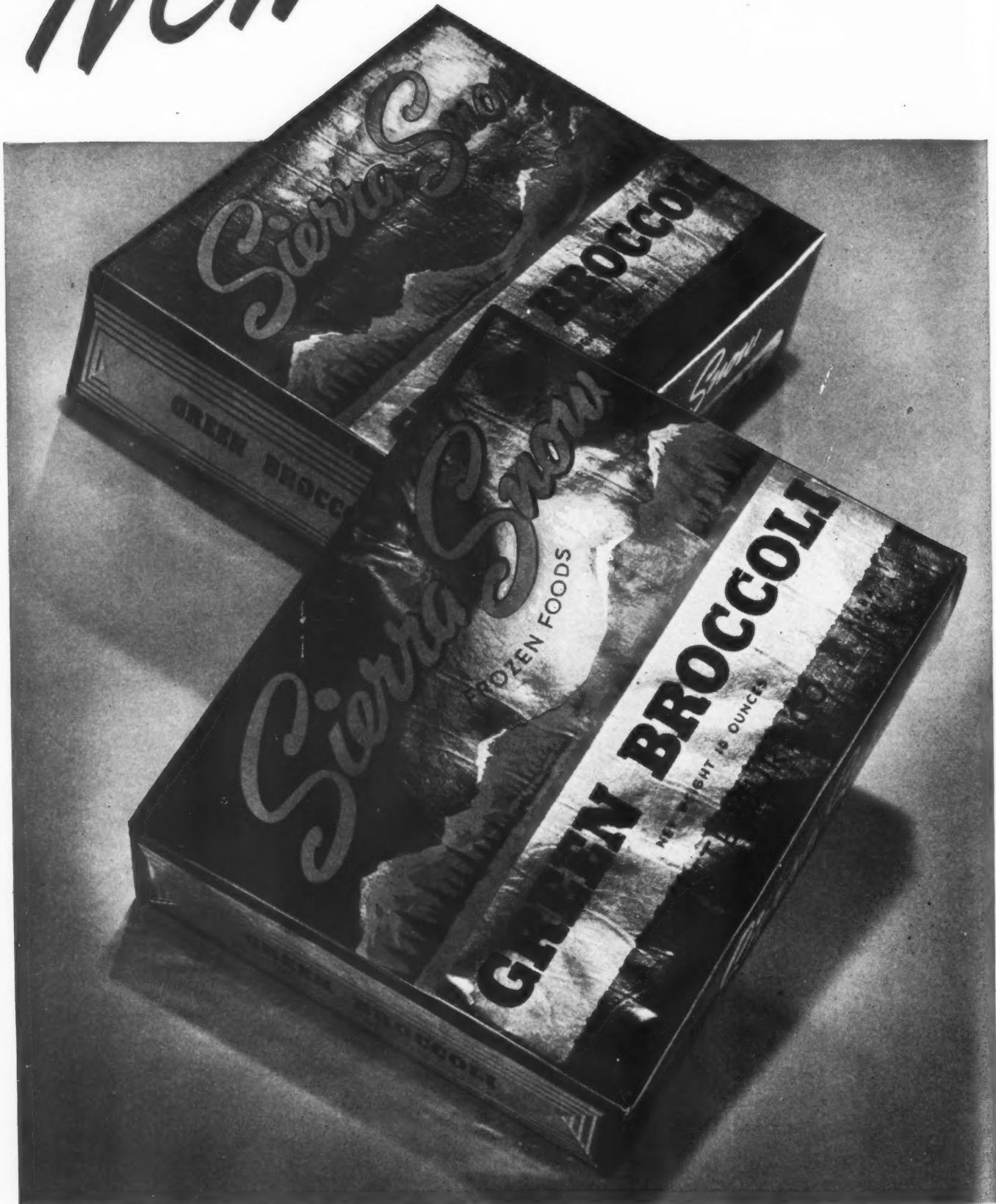
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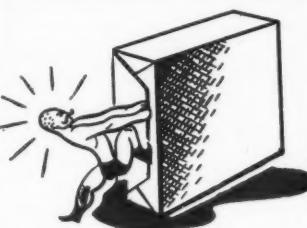
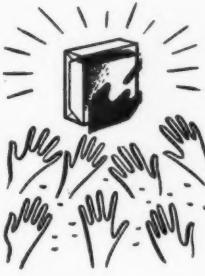
Reyseal protects foods by acting as a positive barrier against moisture vapor transmission. The heat-sealed packages

safeguard color and flavor. Full-color reproductions are printed right on the foil itself, greatly enhancing display value.

REYSEAL WRAP...

for heat-sealed quality protection

plus Sparkling Display

 <p>1. HEAT SEALS TIGHTLY AND THE SEAL STAYS CLOSED</p> <p>When heat is applied to surface, wax bleeds through porous tissue to form a tough fiber-reinforced, leak-proof seal.</p>	 <p>2. MOISTURE VAPOR CAN'T GET IN . . . OR OUT</p> <p>A thin metallic shield of pure aluminum forms a positive barrier to moisture-vapor transmission . . . no dehydration . . . no added moisture can get in from outside.</p>
 <p>3. DESTRUCTIVE LIGHT RAYS TURNED ASIDE</p> <p>Light rays harmlessly bounce off Reyseal . . . no loss of flavor . . . no discoloration.</p>	 <p>4. THEY REACH FOR THE SPARKLE OF FOIL!</p> <p>Reyseal with foil surface outside gleams and sparkles from the shelf . . . attracts and sells customers.</p>

YOUR PRODUCT looks better and *keeps* better when wrapped in Reyseal. For confectionery, frozen foods, soap, tobacco and many other items, Reyseal offers outstanding advantages never before available in a flexible packaging material.

Reyseal is a thin laminated sheet combining aluminum foil, paper base, wax and an outer layer of porous tissue. Reyseal can be used as an overwrap for cartons; as an intimate wrap for individual packages, and as a sealed bag for hard candies or similar products.

Reyseal can be tailored to your taste and needs. It can be thick or thin . . . the foil surface can be outside or inside. Beautiful full-color reproductions can be printed right on the foil itself adding sparkle and luster to the package.

Reyseal is easy to handle and economical to use. It may be applied by hand or by fully automatic equipment designed for heat sealing. For further information, write Reynolds Metals Company, Foil Division, Richmond 19, Virginia.



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A "Pick-up" in
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COLORFUL *plastic* CONTAINERS

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USE CLEARSITE — the "Safety Base" Plastic for a real "pick-up" in Packaging.

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[WE START FROM YOUR IDEA, DESIGN,
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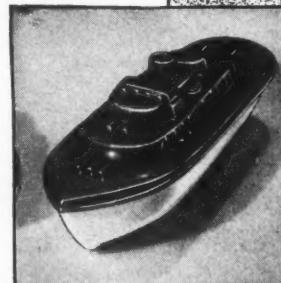
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Western Packer adopts Prime-Pac
for 25-lb. carton packs!!
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Southern Packer adopts Prime-Pac
bags for frozen shrimp!!
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bag liner for frozen cream!!
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Perfect for Meats—Poultry—Fish!!

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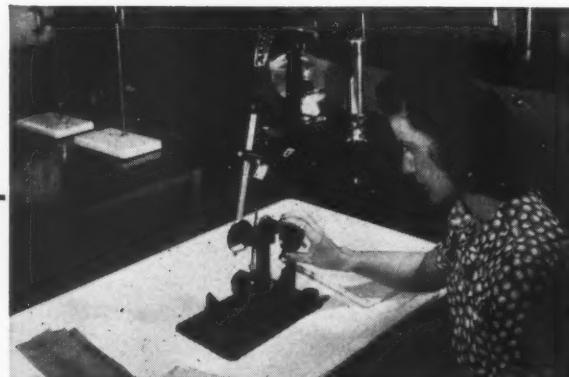
That's because American Anode latices and mixes offer the *modern* way to coat and impregnate paper.

... Modern, because American Anode latices and mixes are water dispersions—no dangerously explosive solvents used—no cumbersome and costly solvent recovery systems needed.

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If you have any interest in coating or impregnating paper, please write for more information about this new and *modern* method. Department AC-10 American Anode, Inc., 60 Cherry Street, Akron, Ohio.



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"How to protect our batteries in shipment? The answer was an Acme Silverstitcher and a unique hood of corrugated board with a strong reinforced closure of Acme Silverstitch Wire. Now dealers praise the excellent arrival condition of our product."

**USE THE CLOSURE
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This color subject originally reproduced at U. S. P. & L. on point-of-purchase displays for SUNFLEX wall paints, product of the National Gypsum Company.

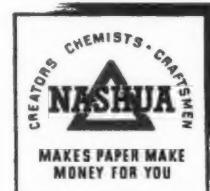


THE UNITED STATES PRINTING & LITHOGRAPH COMPANY
EXECUTIVE OFFICES: 615 BEECH STREET, CINCINNATI 12, OHIO ★ SALES OFFICES IN PRINCIPAL CITIES .
5 GREAT U-S PLANTS PRODUCING HIGHEST QUALITY ADVERTISING AND PACKAGING MATERIALS

Modern Display makes a MODERN PACKAGE *Essential*



Modern display has put your package out front where customers can see it — and compare it with your competition. It must not only be better but *look* better than competitive products if you want it to *sell* better. . . . All Nashua packaging materials are designed and manufactured especially with modern display requirements in mind, to give your product a decided edge over competition. This is good business on our part, because our success is a direct reflection of the individual successes of our customers. Write Nashua today. Whatever your requirements, the Nashua line of packaging materials is complete.



NASHUA GUMMED AND COATED PAPER COMPANY, NASHUA, N.H.

MODERN PACKAGING

VOLUME 20

OCTOBER 1946

NUMBER 2

The foil label a future brilliant as its shining surface

Early this year, Flotill Products, Inc., Stockton and Modesto, Calif., announced the adoption of aluminum foil labels, many of them process printed, for all varieties of its pack.

This was real news, because heretofore many food processors had considered the wrap-around foil label too expensive for mass-produced canned food products. The major reason for such labels on canned foods, of course, is eye appeal—the merchandising advantage of this brilliant metal surface, color printed by modern methods—and it took a test case to show that these advantages outweigh the additional cost of using foil.

Increased production of aluminum during the war, however—more than a billion and a half pounds a year—has encouraged foil producers to find new markets for this abundant material. Labels, used by the billions for many types of products, offered a fertile field and a few pioneers in the canned food industry were induced to try the experiment of foil labels.

Their letters, after test periods, are convincing proof

that the foil wrap-around label has a future in the canned food field as brilliant as the reflective surface of the material itself.

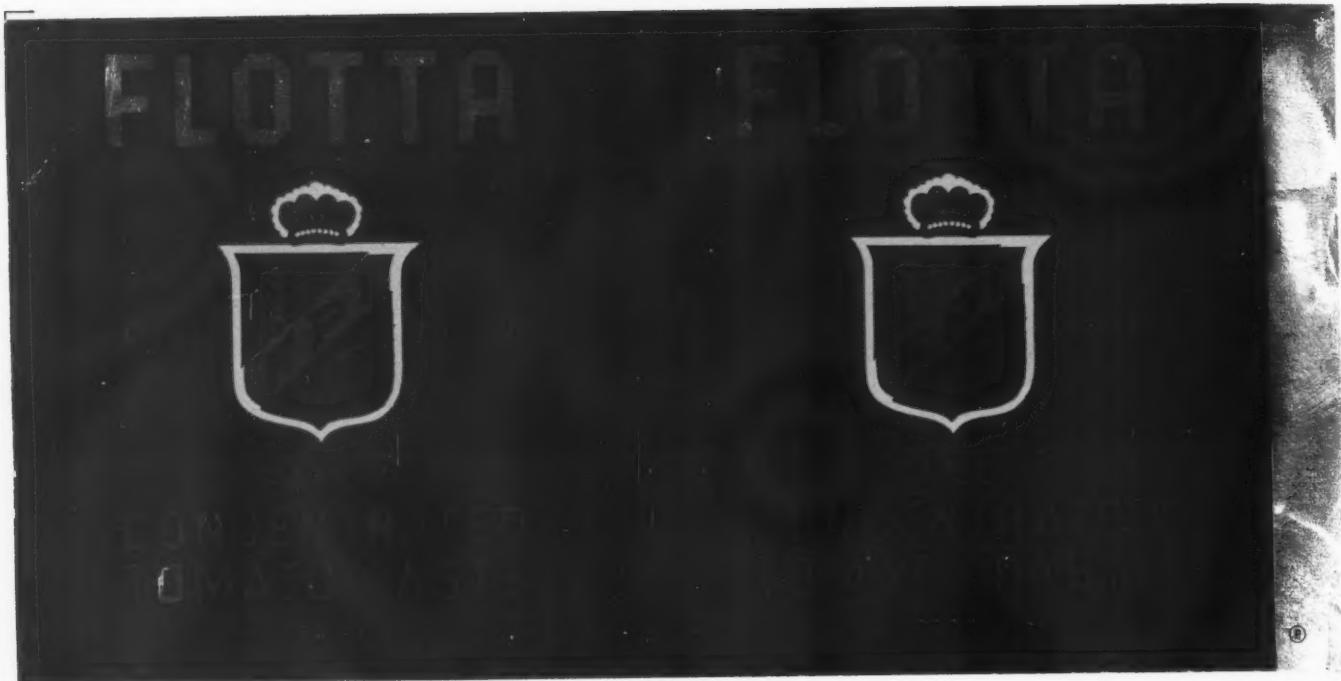
Users say that, in spite of higher cost—as much as 50 to 100% in some cases—foil labels are worth every penny. Salesmen who carry samples of foil-labeled canned foods in their kits say store operators will stock such products in preference to others for the added shelf appeal of the foil package, and are quick to sense this added merchandise feature.

Since announcement of the Flotill labels, several other important food companies have adopted similar foil label programs. In California, the Kadota Fig Assn. is putting a foil wrap-around label on its glass package of Kadota figs. At Bridgeton, N. J., P. J. Ritter Co. is using a printed foil label on its glass packed White Label Beans. At Vineland, N. J., Venice Maid Co., Inc., has adopted a four-color process label for its Quality Brand Packed Tomatoes.

All of this development in the food field is in addition

For beer, beverages, or other products stored in coolers, waterproof foil label, left, offers complete protection and eye appeal of metallic brilliance. 50% of beer labels may soon be foil. White Rock sparkling water and ginger ale, right, will be featured in a merchandising program built around foil labels. Note how opaque white lettering, and illustration are emphasized against large gold lacquered metallic areas.





Flotill Products, Inc., has adopted foil wrap-around can labels for all varieties of its present pack. The one shown here is an excellent example of the color variety obtained on foil by the use of one transparent red over opaque areas, but allowing the sheen of the metal to show through on the others.

to the already wide use of embossed and printed foil spot labels on glass packed products such as sandwich spreads, jams and jellies, pickles, peanut butter, catsup, cooking sauces, coffee, dried beef, nut meats, salad dressing and many other specialties—many of which are appearing with foil labels for the first time or reappearing with them since the war.

Foil is protection for beer labels

The biggest field for the foil label and the one that has really placed this type of packaging supply in the volume class is the beer and beverage industry. For beer and beverages—in fact, for all types of products that must be labeled and stored in coolers—the foil label has a definite functional value in that it resists moisture. The foil, itself moistureproof, laminated to the paper prevents water and moisture from being transmitted through to the paper and the adhesive which holds the label to the container. This protection helps to assure adherence of the label, an advantage that is much appreciated by dealers who keep beer and beverages under refrigeration where moisture sometimes loosens other types of labels. When this happens labels come off, product identity is lost, and a lot of extra work is involved in cleaning up the stray labels left in the coolers. Seepage of water, even around the edge of a foil label, will not loosen it completely from a glass container, it is said, since the water, not being able to penetrate the overall foil surface of the label, cannot do enough damage to loosen the label.

In addition to the moisture protection given by the foil label for bottled beverages is the attractive appear-

ance imparted to the package. Foil labels for beer were just beginning to receive wide acceptance a few years before the war. In 1939, Schlitz adopted foil labels and reported an increase of 30% in sales of bottled beer for the first half of 1940 in comparison with an 8% increase for the industry as a whole—an increase which the company attributed in a large part to the new labels.

In 1940 it was estimated that 25 to 30% of the beer labels used by American brewers were foil laminations. During the war years, aluminum was banned for this purpose, but is now coming back and some authorities estimate that 50% or more of the beer labels will be foil by the end of this year. What this will mean in label production to the producers and converters of foil can be envisioned when it is known that beer production in the United States in 1944 was 79.3 million barrels, 49 million of which were packaged beer.

The advantages of aluminum labels are being discovered by many other industries, primarily because of their attractive appearance, but also because of their resistance to rough and frequent handling, their resistance to grease, to water, to insects, to light, and because of their dimensional stability and freedom from odor transmission. Spot labels, embossed and colorfully printed, are being adopted for a number of household products, such as cleaning preparations, polishes, waxes, etc., which require a label that can "take it" under frequent usage. An old favorite, "Porter's Champion," a polish for copper, brass, silver and other metals, for instance, sports a satin finish foil label designed with a dapper red-capped porter carrying a bottle of the product as the pictorial decoration, embossed and printed in black and red.

The toiletries and cosmetics industry—also looking for labels that will withstand many handlings—has discovered foil. Those you will find on the market are for such products as hand lotions, permanent wave lotions, finger wave preparations, hair oils, shampoos, toilet waters, brilliantines, perfumes, etc.

The confectionery field, long a confirmed user of foil wrappers, also makes use of elegantly embossed spot labels of foil in natural finish or gold-lacquer printed in colors for boxed and other packaged assortments. Wines and liquors, too, are given an air of quality through the use of foil front and neck labels, many of

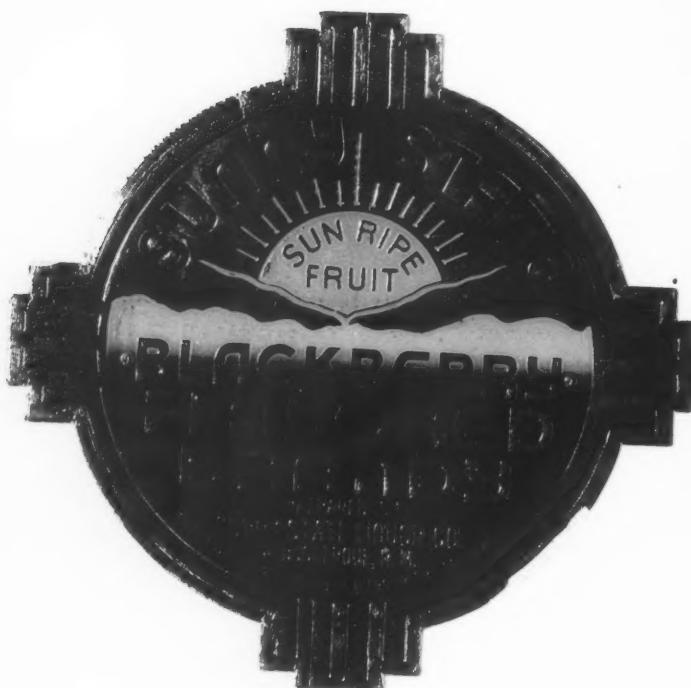
them elegantly embossed and printed in various colors.

The clothing industry is also using large quantities of brilliant foil labels to identify belts, braces and wearing apparel of various kinds. Furniture manufacturers are using heavy laminated foil for name plates on their products.

Broadly speaking, foil used for labels is rolled from 0.002 in. gauge to as thin as 0.00035 in. Usually it is laminated to a paper backing to increase its strength, to improve its resistance to breaking and tearing and to provide a surface for the adhesive. The paper backing also makes possible the use of thinner gauge foil, which,

This Tropic Brand fig label is designed as a wrap-around for a glass container. Buff lettering with gold outline spotlights the product name. The brilliance of the foil emphasizes the line drawings of palm trees by reflection. Canned foods are a new field for the aluminum foil label. Venice Maid is an example of rotogravure four-color process work on foil. This label is being used for the fall pack.





Foil labels give distinction to bottled brandy and whiskey. This one (left) is printed and embossed on thin-gauge aluminum foil laminated to gummed paper stock. Aluminum foil was first gold lacquered and then printed and embossed in one operation on a special printing and embossing press. Slightly heavier stock is used for this label (right) so that it accepts and retains the embossing somewhat better. Sample shows effect that can be achieved by black and white printing plus embossing on the uncolored aluminum foil. This label, like one at left, was also produced on a special printing and embossing press.

of course, saves metal and thus has assisted in bringing the price of the foil label within reach of a much greater number of users. Spot labels are supplied gummed or ungummed according to specifications. Wrap around labels are applied with adhesive on various standard types of labeling equipment. Adhesive problems are worked out with adhesive suppliers. Recent developments in thermoplastic labeling equipment may also mean future treatment of foil labels for applications by means of heat sealing agents (MODERN PACKAGING, Sept. 1946, p. 128).

Reynolds Metals Co., which not only makes foil, but supplies foil labels completely printed and ready for use in roll or cut form, has more or less standardized on a label stock comprised of 0.00035-in. foil solid glue laminated with waterproof adhesive to 25 to 30 lb. groundwood paper, but uses somewhat heavier gauges of foil and paper for labels which are to be embossed.

Aluminum Co. of America sells aluminum foil in roll or sheet lots to converters in accordance with specifications for gauge and finish. These operators, and there are a large number throughout the country, laminate the foil to their own paper stocks. Gummimg, printing and embossing are frequently done by different organiza-

tions, each one using its own processes and techniques.

Printing on foil may be by letterpress, lithography or gravure but the printing processes have become an extremely important factor in widening the decorative usefulness of this type of material for packaging.

Foil labels are produced in two types of finishes—bright and satin—but either of these may be combined with an almost limitless variety of colors by means of transparent and opaque inks. The metallic sheen of the aluminum may be allowed to show through the color as in the case of the application of a transparent yellow lacquer which turns the silver-colored foil to gold, or the metallic surface may be hidden completely by the application, in the printing process, of opaque lacquers of every color. This striking contrast between opaque and transparent colors, with the sheen of the metal sometimes showing through the transparent lacquers, is what gives foil the eye appeal that wins sales—the rich effect of glistening borders, the highlight reflections that emphasize lettering and fine line drawings and reproduction by four-color rotogravure process of drawings and color photographs—a development which is now beyond the experimental stage.

A leading authority on foil design says: "Imagine all

of the color printing possibilities that can be attained on paper, multiply them by two and you will get some idea of the color variations that may be obtained on foil."

Every color that can be produced on paper, he says, can be produced in two ways on foil by means of transparent and opaque lacquers—one allowing the natural surface of the metal and its reflection to show through, the other completely obliterating the metallic surface.

Designing on foil is like designing on mirrors

Because of this wide color variation and the nature of the reflective surface of the foil, there is a special technique in designing on foil. If not handled correctly, the glitter can ruin the package. You may find, for instance, that all the identity of a label is lost in brilliant sunlight or under store lighting, if lettering reflects the foil surface in such a way that trade name or product name is illegible because of the reflected light. The contrast between opaque and transparent areas must also be handled so that the reflections emphasize informative and display copy, and illustration. There are times, too, when to obtain an atmosphere of elegance, the broad surfaces of the foil should be covered; other times when it should be left uncovered to give the full effect of its glitter. To do this skillfully requires study. Producing a design on bright finish foil is somewhat like producing a design on a mirror; all effects of the reflections must be considered.

Reynolds Metals Co. has recently set up a design studio with a staff of 15 to 20 artists, whose sole function is to study design problems in the use of foil, as a service to prospective users and those who plan to redesign foil packages. Label manufacturers offer similar services. When you contemplate a foil label, services of such experts are available to help you get the greatest

sales value through the correct use of design. Even experienced designers in other media need coaching on the proper handling of foil, suppliers of foil labels say, and are eager to give guidance in the planning of their use.

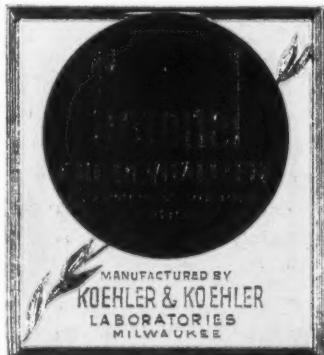
Greatest strides in methods of printing foil are being made in the field of rotogravure. Large rotogravure presses now can turn out four-color process work on foil stock at the rate of 400 ft. per minute, and apply all colors at different press stations, with only one press run. Labels are supplied in roll form or cut in any shape to specification.

Kodakrome illustrations may be reproduced by such methods on a foundation color of opaque white as faithfully and realistically as on any other type of printing surface, yet are contrasted with the brilliant effect of natural aluminum or gold lacquered surface. Such illustrations are reproduced by means of 150-line rotogravure screen, with line copy also screened, but the screen is so fine and line copy reproduces so sharply it is difficult to see the screen.

These advancements in methods of printing foil labels, plus the future abundant supply of foil and the knowledge that has been accumulated in ways of designing it, are worth careful study by manufacturers in many lines of packaged goods who are looking for more distinctive ways of presenting their products on the counters and shelves of the nation's retail stores.

CREDITS: *Tropic Fig, Venice Maid, Flotta Tomato Paste, White Rock Ginger ale and Schmidl's beer labels, manufactured and printed by Reynolds Metals Co., Richmond, Va. Sunny Slate and Netherland Plaza labels, printed by Fleming-Potter Co., Peoria, Ill.; using foil made by Aluminum Co. of America, Pittsburgh, Pa. Uncle Ben's Coffee and Coronel permanent waving lotion labels printed by Kirby, Cogeshall, Steinau Co., Milwaukee, Wis.; using foil, by Aluminum Co. of America. Designer cooperating with Reynolds' art staff for White Rock labels, Mitchell, Studios, N. Y.*

Use of this black and red printed foil label for coffee package (below, right) indicates its many applications. Treatment is simple, but wide areas of metallic surface provide maximum in brilliance. Coronet label (below) shows use of foil in the toiletries field. It will withstand many uses—is greaseproof, stainproof.





(Above) Square shape of brightly lithographed tins gives better display value to Middleton tobacco line, saves shelf and shipping space. Lids, with lever lift, carry identifying color of brand. (Left) Contrasting new and old packages for Walnut, the leading brand. Although square can actually takes less shelf area, it appears the larger. Note subtle redesign, proportioning of label.

Middleton squares . . . distinctive tobacco tins

Distinctive tobaccos call for distinctive packaging, but in a field which is highly standardized as to machinery and containers this is not easy to achieve.

One point of similarity stands out in practically all brands of smoking tobacco packed in the 1-lb. "humidor" size. They are round—either the standard glass jar with lug-type metal closure, or the standard round tin with friction lid.

It occurred to John Middleton, Inc., that an outstanding departure from the usual would be simply to adopt a square shape. One of their five famous brands of pipe-tobacco mixtures—Club Mixture—had been packed from the start, some 13 years ago, in a square tin and had experienced an excellent reception. If adapted to the entire line, the square shape would offer space-saving economies and easier stacking—in the manufacturer's stock room, in shipping cartons and on retailer's shelves. Furthermore, it would offer four flat faces of maximum area for advantageous label display.

The one brand which had previously been packaged

in a square tin had been hand-packed. If the entire line was to be changed over, automatic filling machinery would be necessary. No such machinery for square tins had ever been developed for the tobacco industry.

The problem was presented to Middleton's machinery supplier. Could he build a new machine, equal in operating rate and facility to the machines already in use on round containers but adapted to the handling of square tins?

He could and did. The mechanical problems were soon solved and the first machine was installed in Middleton's Philadelphia plant last March. Now the changeover is complete, and all five brands are being packed in lithographed square tins which, except for labeling and colors, are identical. Production is normally 40 a minute and may be as high as 80.

One of the problems in adapting the machine from round to square containers was to keep the square tins from turning in the can-carrier under the filling head, because otherwise the tobacco flowing down from the

filling funnel might spill on the surface of the container top rather than into its round opening. This had been no problem with the round container previously used. The machine designer solved this with an ingeniously shaped can-carrier arm which holds the square tin in positive position.

A second question was how to permit the can-carrier to pick up the first can coming from the delivery conveyor without mutilating the can following. This was not such a problem with round containers, since there was some space between them. This problem was solved with a can safety device, or can locator, which turns the lead can slightly as it enters the machine, leaving a V-shaped space which the can-carrier hook can enter without mutilating the cans.

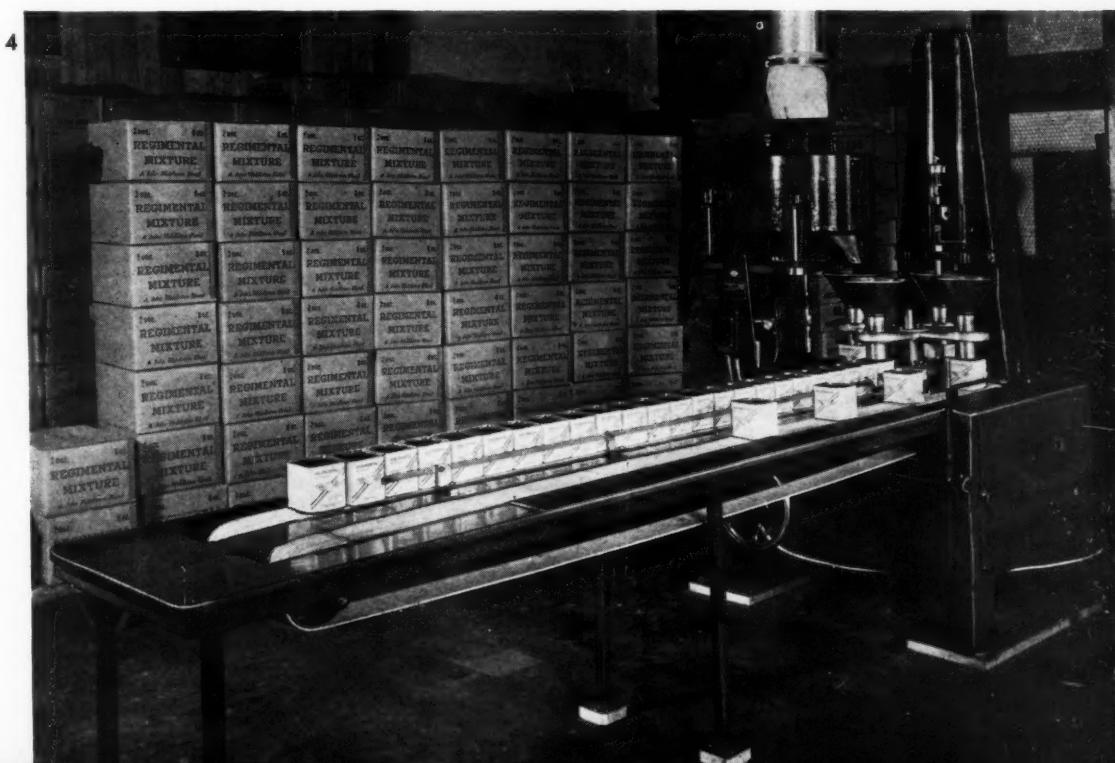
This is how the machine works: There is a constant flow of tobacco into the machine hopper from a bin located on the floor above. The empty cans move from a conveyor belt onto a circular cam which raises the cans so that the bottom of a filling funnel projects into the can. The can and filling funnel then move in unison clockwise into Position 2, under the filling head, where a volumetrically measured charge of tobacco is received. The can continues to Position 3, where a plunger comes down through the funnel to firm the pack, and finally to Position 4, where the cam declines and the can-carrier or "hook" pushes the can onto another belt to be carried away from the machine.

At present the round friction lids are applied by hand, but a roller mechanism will soon be installed to take care of this operation and further speed up production. The lids have a patented lever-lifting device.

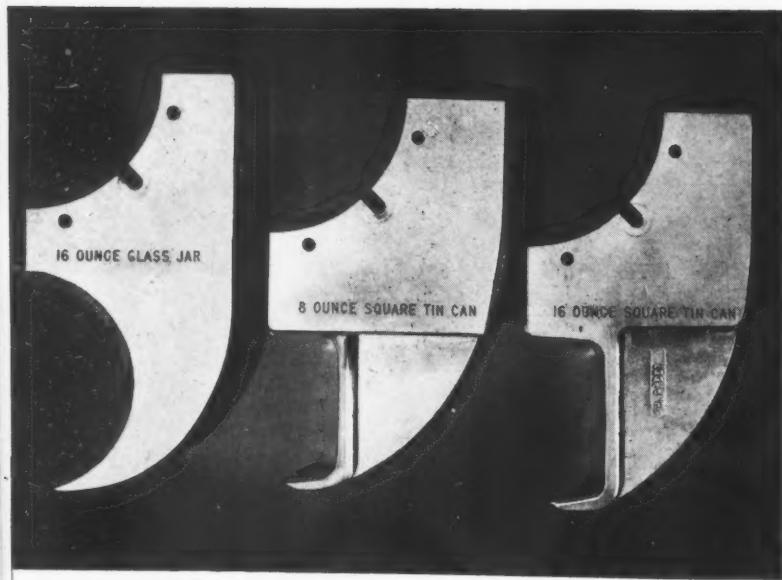
The distinctive appearance of each of the five Middleton brands in their new square tins is shown by the illustrations. Paper labels—previously used on the square Club Mixture—are dispensed with, and the all-over color lithography gives a very rich effect. The lids, previously left plain, are now lithographed also, bearing the Middleton coat of arms in a design



Close-up of machine developed for automatic packing of square containers. Fill is automatic; plunger firms pack.



Over-all view of new Middleton line. Speed is as high as 80 eight-oz. tins per min.



With these three small change parts, machine can be adapted quickly to any of the types of containers indicated.



Newest design of blending chest, popular gift package, is richly tooled leatherette with acetate cover over assortment. Instruction booklet and pocket pouch are in lid.

5 which is the same for all five brands but in the color distinctive to each brand.

Although the capacity of each can is the same, it will be noted in Fig. 2 that the square tin appears larger than the round. The same illustration shows how the Walnut trademark has been modified very slightly and re-proportioned to fit the square panel.

Change of a single part—the "hook" which holds the container as it moves around the machine's turntable—and adjustment of the volumetric weighing device makes it possible to fill 8- and 16-oz. glass jars interchangeably on the same machine. These change parts are illustrated in Fig. 5.

When the original John Middleton—grandfather of Herbert H. Middleton, the present head of the company—opened his little tobacconist's shop on the Philadelphia waterfront 90 years ago, prepackaging of tobacco was unheard of. Pipe mixtures were weighed out of casks and jars and handed over in a paper bag.

6 Primarily for a group of students at the University of Pennsylvania, John Middleton concocted a blend of seven tobaccos which became known as "Walnut." Sea captains who were also patrons of the little shop tried the blend and liked it. They spread its popularity in other ports, and before long friendly tobacconists began asking the captains to bring them a supply of John Middleton's tobacco to sell in their own stores.

For a time the tobacco was shipped in nameless barrels, but it soon dawned on Middleton that he could capitalize on the popularity of his blend by putting it up in pocket-size packages bearing his name, address and trademark. The Walnut package that resulted was very similar in appearance to the 1 $\frac{3}{4}$ -oz. foil packet which is today the largest selling tobacco in its price class. It was among the first brands to recognize the advertising and merchandising value of a package.

Today packaging is a dominant consideration in company sales policy. Later generations of Middletons added other brands, equally well packaged, and originated such ideas as the variety kit—an assortment package offering the smoker a trial of the five top Middleton brands—and the blending chest, a de luxe gift version of the variety package, designed for the pipe connoisseur.

CREDITS: Filling machine by Wright's Automatic Machinery Co., Durham, N. C.; lithographed tins by Liberty Can & Sign Co., Lancaster, Pa.; opening device by the Lev-a-Lift Co., N. Y.; blending chest by the S. K. Smith Co., Chicago.

7





Paperboard box which can be converted to bed for doll is practical, inexpensive and eye-appealing. In upright position, above, bed box can be used for counter display. Simple flanged design enables production in one piece.

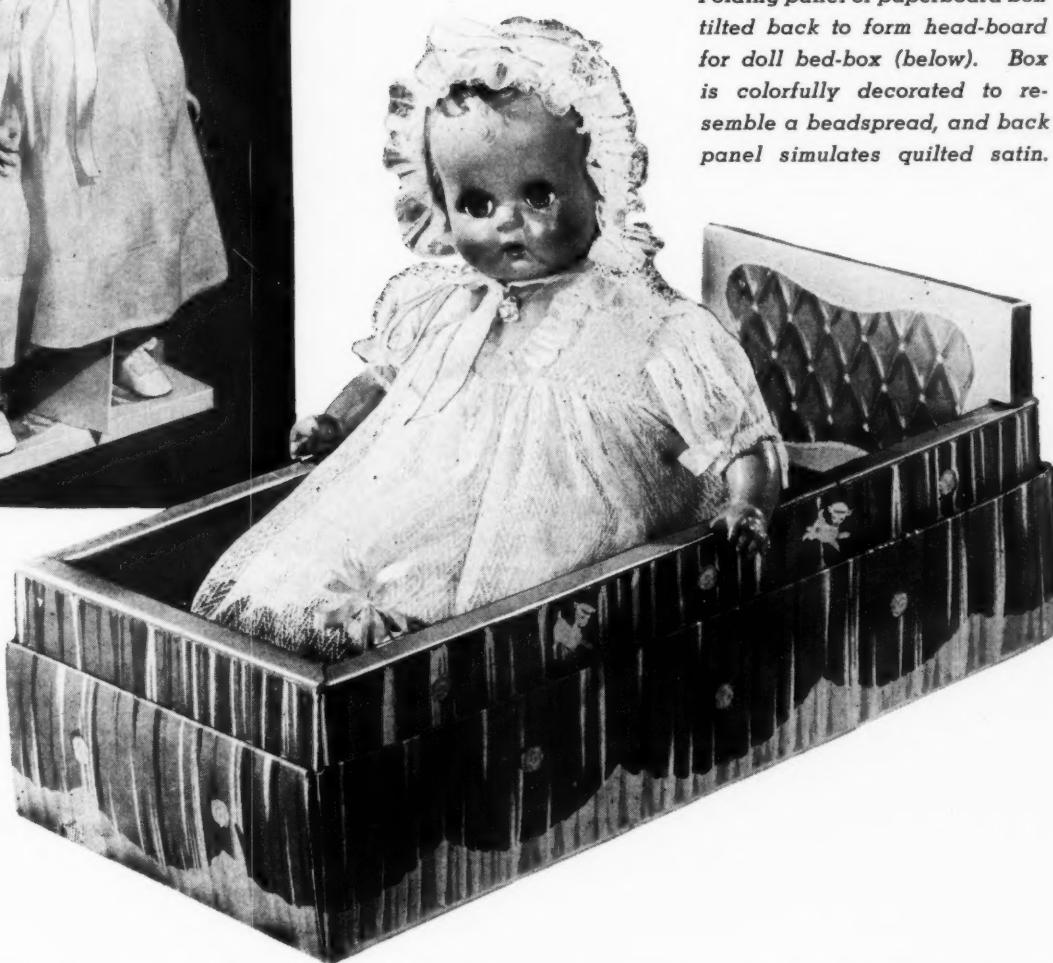
An innovation in packaging which has boomed sales of "Betty Bedtime" dolls for Butler Bros., St. Louis, has been the development of a paperboard box which becomes a bed for the doll when opened.

Butler Bros. Merchandise Development Office surveyed the toy market last year in an effort to improve any weak points in doll manufacture, distribution and retail sales. One outstanding revelation was that dolls, with few exceptions, have gone to market for the past 200 years in unattractive gray paperboard boxes, with no provision for eye appeal other than a "neck board" to support the doll's head.

Reasoning that not only children, but mothers who perpetually find dolls underfoot after the youngsters are put to bed, would appreciate a box which could be converted into an attractive bed, Butler Bros. tested several ideas before standardizing on a simple, flanged design which could be produced in one piece. After

Doll box

... that becomes a bed



Folding panel of paperboard box tilted back to form head-board for doll bed-box (below). Box is colorfully decorated to resemble a beadedspread, and back panel simulates quilted satin.

many unsuccessful attempts, a "box-bed" was developed which met all requirements for packing practicability and of eye appeal for the owners.

The boxes are supplied with a folding panel at one end which, when tilted back, becomes the head-board of the "bed." The inner surface of this head-board has a simulated quilted-satin effect with kapok padding beneath, and the edge of the box holds it rigidly upright. The outer surface of the box is lithographed with a design resembling a spread. The boxes, which come in many colors, are being produced in five sizes, to accommodate dolls from 12 to 28 in. in length.

The box-bed has proved inexpensive to produce, and has the added advantage of making it possible for doll retailers to display dolls without the use of pedestals, shelving, etc., by merely opening up the box-beds and setting them in a row on counter tops.

CREDIT: *Box by Morris Paper Mills, Chicago.*

Solid geometry



Square plastic closure is equipped with rod held by friction in cork secured by the metal cup over bottle neck. Pyramidal-shaped shoulder of bottle holds square cap securely in position with sides of the square-shaped bottle.

Leakproof square closures that fit accurately on square bottles.

Boxes that apply new principles of geometry to set-up box making.

These are the striking packaging innovations developed by Alfred D. McKelvy for his perfumes, "Vice-Versa" and "Et Cetera," presented in his new Victoria line, including—in addition to perfumes—toilet water, cologne, bath oil and sachet.

This is Mr. McKelvy's second big venture into the cosmetics field. He is the successful developer of the Seaforth line of men's toiletries which he later sold to Vick Chemical Co. and which was an All America Package Competition winner in 1940. For the Seaforth line, Mr. McKelvy was one of the first to achieve, by means of the metal cup-over-neck principle, a successful closure for mass-produced pottery containers.

Equal ingenuity has been applied in the development of the Victoria containers. During the war years, he says, there was nothing particularly new in cosmetic packaging. Everybody made the most of stock con-

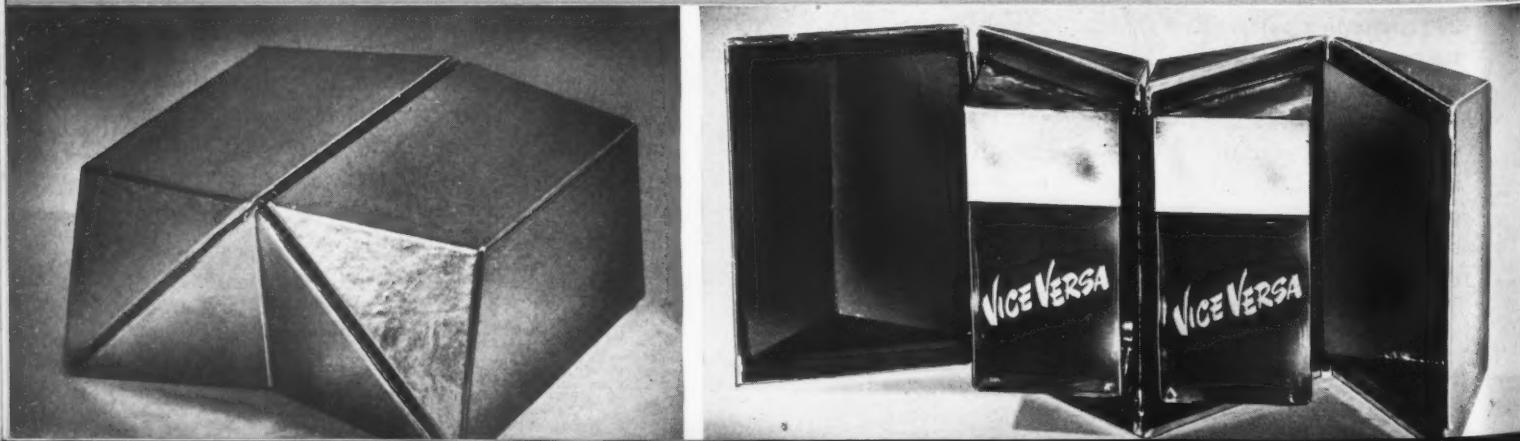
ainers and produced many beautiful packages, but when he started plans for "Vice-Versa" and "Et Cetera," he wanted the merchandising advantages of something entirely different.

First development was the square closure. Previously these had been produced on the screw-cap principle. This works very well for the first few uses of the closures, but after threads start to wear there is no way to make the four corners of the square cap fit in perfect juxtaposition with the shoulders of the bottle. McKelvy therefore abandoned the principle of the screw cap in designing a new square closure. Instead, he uses a specially designed bottle with pyramidal shoulder and affixes a cup over the neck to hold a cork. The square cap is then equipped with a rod which is held by friction within a hole in the cork. Since the shoulder of the bottle is pyramidal in shape, the square cap can only rest securely on the bottle in one position and that is with its sides flush with the square sides of the bottle. In fact, so securely do the square closures fit that they actually click into position. Urea formal-

(Page 100)

View of two-compartmented box when it is closed illustrates the triangular and trapezoidal surfaces.

Same box opened showing how square bottles fit into the compartments tilted upward, easel-like.



for McKelvy cosmetic packages

dehyde is the material for the closure, which is compression molded in one piece. The exterior of the closure is gold plated by a special process said to be similar to electroplating.

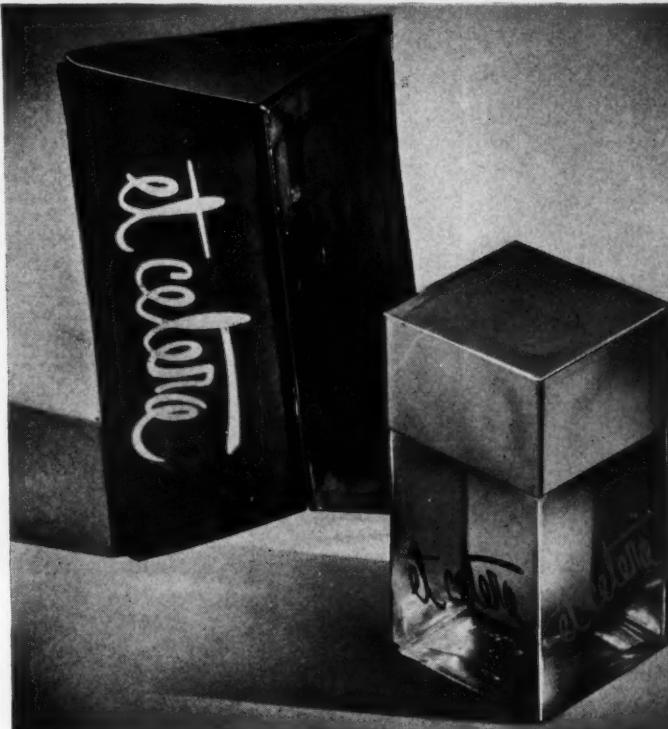
The planes of the boxes are an ingenious arrangement of trapezoids and triangles, which when combined to make three-dimensional hinged boxes offer almost unlimited possibilities for combinations of forms and will give display men a field day of arrangement as exciting as a child with a set of geometrical blocks.

The simplest of the boxes has a compartment to hold one bottle of perfume or other product in such a manner that it rests in the box diagonally. Two such units hinged together hold two bottles. Three units hold three bottles. Various ways in which the two-compartment box may be arranged are shown in the accompanying photos. When it stands on the end triangles it presents the product as though tilted on an easel. This is one of the most important features, because the box will always rest so that the product is tilted upward, toward the shopper. By bending the triangular compartments backward, they may be arranged in almost rectangular form. By turning the sections on their sides and bending the center hinge upward, one may achieve a platform arrangement on which to place the bottles in upright position.

The box coverings are transparent lacquered aluminum foil so that one side of the box is gold. The reverse side is covered with paper, vinyl coated to give the shiny effect of black patent leather. The same box coverings are used on the boxes for both scents, only for "Et Cetera" the black covering is used on the outside and the gold foil inside. For "Vice-Versa," this color scheme is reversed; gold outside, black inside.

Labeling is simple in black and gold—and the script lettering is repeated on the bottles by direct printing on the glass. Bottles are labeled on two tangent sides,

Bent backward, the sections provide a platform on each side to give an interesting display effect.



Same basic package structure is used for all packages in the line. Here is a single unit box for "Et Cetera." Basic color scheme is black and gold. For "Et Cetera" black is used outside, gold inside. For all the "Vice Versa" scents, the same color scheme is reversed; the gold foil is used on the outside and shiny black inside.

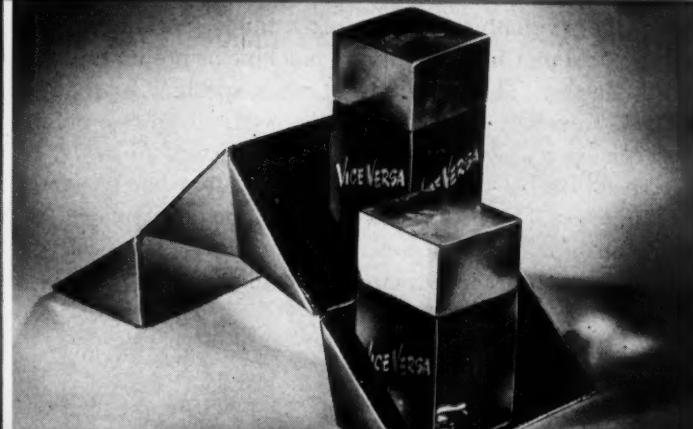
both sides visible when placed in the boxes diagonally.

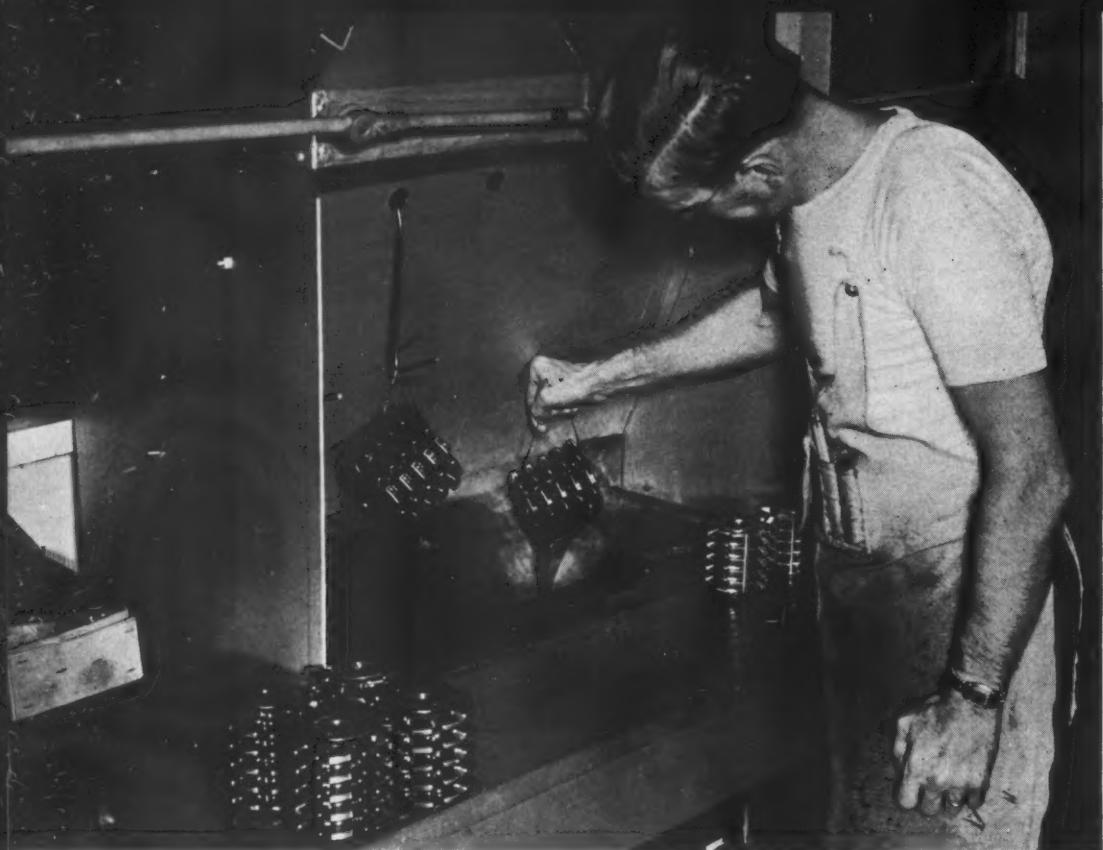
A total of 56 items, comprised of 40 units and 16 combination sets, will be packaged in these same basic packages. They include the five products—perfume, toilet water, cologne, sachet and bath oil—in both scents and in four sizes— $\frac{1}{2}$ oz., 1 oz., 2 oz. and 4 oz.

CREDIT: *Box design, Jon Stengren, Forest Hills, N. Y.*

(Page 101)

When center section is bent upward, an entirely different display arrangement of steps is achieved.





Hobs being dipped, by the single dip process, in a hot ethylcellulose compound as part of the packaging process at Barber-Colman Co.

Serve and sell

... that's the aim of Barber-Colman's new packaging for cutting tools, utilizing plastic strip-coating

In packaging small precision cutting tools such as hobs, cutters and reamers, the Barber-Colman Co., Rockford, Ill., is concerned with relatively few, yet very important and specific packaging requirements. These requirements are not different from those of manufacturers in other fields, but they are perhaps unique in the cutting tool industry insofar as their degrees of importance are concerned.

These cutting tools are marketed, for the most part, directly to the customer, through the company sales organization, and therefore they do not ordinarily reach the shelves of the wholesaler or jobber. Furthermore, these valuable tools are often made specially, to suit a particular manufacturer's machine or production requirements. They are, in most cases, specified by the manufacturer's engineering department. Impulse or convenience selling of these tools is non-existent.

Hence, Barber-Colman is only partially concerned with the usual well-established techniques of package salesmanship. Eye appeal, copy, company identification, etc., are of subordinate significance. The pack-

aging problem becomes that of supplying very tangible services to the customer. It is these added services upon which Barber-Colman depends for a job of repeat selling.

An analysis of the customer's problems in the purchase and use of cutters suggested four avenues through which packaging could serve and sell:

1. Deliver the merchandise safely into the customer's plant with original accuracy and perfect condition.
2. Protect the tool while in storage or when handled in the customer's plant.
3. Permit instant, easy and positive identification at all times.
4. Provide maximum safety to personnel in handling or using these extremely sharp cutting tools.

All of the above requisites are economically and completely provided for by a single new packaging technique, the application of an ethyl-cellulose hot dip coating. This is one of the first instances of the use of



Close-up of a typical dipped Barber-Colman cutting tool, showing that identifying markings on the tool are clearly readable through the transparent "Protecto-Coat."

this war-borne packaging for a peacetime industrial product. All Barber-Colman hobs, cutters and reamers are now shipped in this tough ethyl-cellulose coating. The Barber-Colman tradename for this material is "Protecto-Coat."

Protects precision surfaces

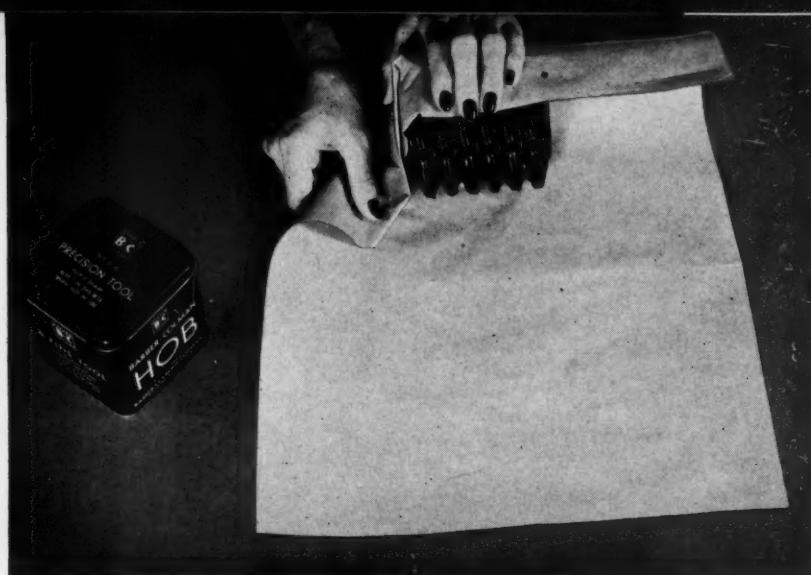
Cutting tools are not products which lend themselves to mass production techniques. The majority of these tools are manufactured specially to customers' exacting specifications. They must be designed and manufactured out of high-speed steel, with accuracy measured in 0.0001 in. Hence, there is a time lag between the placing of an order and the receipt of the tools. The customer anticipates this in setting up his production schedule. It is important, therefore, that the tools be in perfect condition and ready to deliver to the production line upon arrival in the customer's plant.

These cutters and hobs are hardened and ground for cutting tough steel, iron and other metals. They are brittle and metal-to-metal contact during shipment will chip or break the cutting teeth.

Tests were conducted to determine the physical protective qualities of the plastic coating against damage in shipment. Seven shank hobs, about 1 in. in diameter by 7 in. long, were coated and placed side by side in a strong fibreboard shipping carton with no other protection on the inside of the carton. This carton was then secured with wire and shipped to the B-C West Coast office. By request, this shipment was unopened at its destination and returned in the original carton.

With this severe handling, the package had received so much punishment that its contents were about to fall out through the split seams. But inspection showed that the coating was broken on only two of the hobs, while that on the other five hobs was intact. However, none of the hobs had a mark of any kind to indicate damage or metal-to-metal contact.

Subsequent use of the coating has in the opinion of Barber-Colman officials, established it as a foolproof

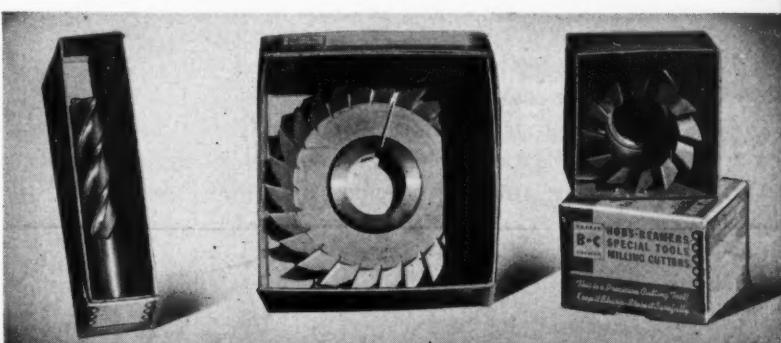


After coating dries, tools are wrapped in greaseproof paper and placed in either fibreboard or metal boxes (left) depending on storage and handling probabilities.



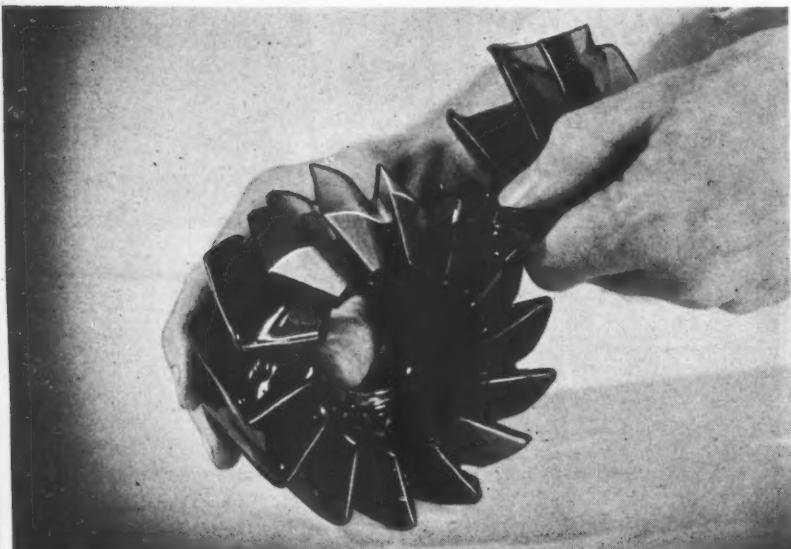
Metal-edge fibreboard boxes are well and uniformly designed. They are full-telescope; bottom is display space. Side panel is inverted so that when box is placed on the stockroom shelf the outside half of box is actually the bottom, minimizing chances of dropping heavy tool.

Showing how the tools fit inside the fibreboard boxes. No wrapping for corrosion prevention is required; when plastics is stripped off, part is clean, ready for use.





The tools move directly from the tool crib into production work. Protected by the coating, they are clean and corrosion free and no further preparation is required.



The ethylcellulose coating peels off readily and, if so desired, it may be replaced for added mechanical protection when the tool is put back into storage.

method of protecting the carefully finished cutting edges on all types of milling cutters, reamers and hobs.

Easy identification

Exact specifications are engraved on all small tools to prevent confusion and costly mistakes in using wrong sizes and types. These markings must be easily and clearly legible to the customer at all times. Unlike some similar coatings, Protecto-Coat is very transparent, and therefore it is not necessary to remove it for any reason until the tool is ready for use on the machine.

Since cutting tools are sometimes received by the

customer far in advance of the time when they will actually be used, they must be adequately protected during storage not only against breakage, nicking and abrasion, but also against oxidation from fumes and acids frequently present in shops.

In testing the protective quality of Protecto-Coat against corrosion and rust, two thread milling cutters, 4 in. in diameter by 2 in. long by $1\frac{1}{4}$ in. hole, were tested. One cutter was double-dipped with a $\frac{1}{2}$ -in. over-lap, while the other was suspended on a fibre cord through the hole, and covered completely in one dip.

These cutters were suspended in a salt spray for a period of 250 hrs. at 100 deg. F. When the coating was peeled off, the cutter which was double-dipped showed absolutely no signs of rust or marks of any kind. The cutter which was single-dipped from a fibre cord showed a very minute spot, about $\frac{1}{32}$ in. in diameter under the cord, which would be insignificant so far as the operation of the cutting tool was concerned.

Barber-Colman has reached the general conclusion that, when properly dipped, Protecto-Coated cutting tools are absolutely impervious to rust oxidation, finger marks or other chemical stains which mar the precision surfaces of the bearings or cutting teeth. In addition, after the coating is peeled off the tool, a beneficial thin film of oil is left on the tool surfaces.

High-speed steel, hardened and ground cutting edges are knife-sharp, and must be handled with extreme caution by the user. A Protecto-Coated tool may be firmly gripped over the teeth without danger to the bare hand. This is the manufacturer's insurance against costly accidents through careless handling.

In the case of certain tools such as end mills, the coating can be again used after the tool has completed a job and is returned to the tool crib for storage.

The plastic coating is a much cleaner protective material than oil or grease and can be removed more easily. It peels off the cutter like the skin of a tangerine.

Simply and economically applied

With the use of proper equipment and materials, the handling and application of a dip coating like Protecto-Coat is very simple. However, the Barber-Colman people point out a few very important rules which must be observed if satisfactory results are to be obtained.

First, the tank in which the ethyl-cellulose is heated must be so constructed as to heat the material evenly, and it must be thermostatically controlled to maintain an even temperature at all times. This is important in regulating the thickness of the coating applied to cutters, as thickness varies with temperature of material.

Furthermore, ethyl-cellulose degrades very quickly if the temperature is allowed to rise excessively. The result of this degradation is the loss of transparency and increase in brittleness of the material. Of course, these conditions are undesirable in a protective coating for cutting tools.

Secondly, the tank must not be too large. Naturally, it will have to be large enough (*Continued on page 174*)



Your trademark

... are you making the most of it?

John McQuade & Co., Inc. has been making paints since 1885. For many years the idea of quality has been expressed by a trademark incorporating the illustration of a top hat, but so small it was scarcely recognizable and gave neither individuality nor identity to the packages.

Recently McQuade redesigned its entire family of labels covering several hundred products for the complete line of exterior and interior finishes, quick-drying enamels, floor finishes, varnishes and stains.

The top hat now becomes the identifying symbol on the colorful new packages and says "McQuade" instantly on the store shelf or counter.

The package redesign program is one the company has undertaken to help dealers and salesmen to capitalize on the selling advantages of attractive, eye-appealing packages. It is in line with what many leading companies are doing at this time, when a package changeover is accomplished easily because of the limited supply of products and when dealers are not disturbed about selling both new and old packages at the same time. A glance at the photograph and tipped-on sample of the new labels in comparison with the photo of the old label, shows the marked improvement in eye appeal and identity that is accomplished when a leading



Tiny top hat on old packages was ineffective. Big and colorful, it is the main theme of new ones.

designer is employed to emphasize the trademark, copy and color features of a label.

Other improvements are the revamped informative copy and directions-for-use on the back of the label. These have been written in news style, the company says, to answer every question of "why, what, where, when and how" as an aid to users and salespeople.

The new design will be reproduced on the company's lithographed metal containers with nozzle, except that a blank panel will be covered by paste-on labels for identification of the various products so packaged, thus reducing the number of lithographic plates to be made.

CREDITS: Designer, Jim Nash, N. Y. C. Printing, Detroy Press, N. Y. C. Cans and lithography, Continental Can Co., N. Y. C.

Tipped on label illustrates the black and red color scheme of basic design and the treatment of back panel for informative data. Background colors are different for the various types of paints and finishes.



Yams in packages . . . air delivered, they "walkout of the store" in supermarket sales tryout



PHOTO, COURTESY BEMIS BRO. BAG CO.

Five-pound mesh bag consumer packs and multiwall shipping bags each holding 10 packages are shown in this store display. Utmost publicity was drawn from this first air shipment to Chicago. In addition to inside printed label, each mesh bag had tag attached explaining air shipment and bearing greetings from Governor of Louisiana. Shipping bag is effectively printed, with brand and shipper's name, in red, two shades of blue.

Felix Dezauche, founder and head of Dezauche & Son, Opelousas, La., is a man who doesn't believe in standing still, both literally and figuratively.

As a dirt farmer 35 years ago, he founded the commercial sweet potato industry in Louisiana. As the guiding spirit behind the development of production and marketing of yams in his state, he long ago earned the title of "Sweet Potato King of the World."

Last season Louisiana shipped about 20,000 carloads of sweet potatoes to world markets. The Dezauche organization handled more than half this production, as packer, distributor and shipper.

Louisiana farmers have been "sold" on sweet potatoes as a major "money" crop. Mr. Dezauche has seen the industry grow from a carload he managed to induce farmers to sack for him less than 35 years ago, to its present production of 20,000 carloads.

He knows that continued increases in production, year after year, eventually will glut the "natural" market for sweet potatoes. So he recently took a long step to reach out and create new markets to absorb the expected increase—without resorting to lower prices.

He has gone in for consumer packaging of sweet potatoes—a bulk, comparatively low-priced food commodity.

Select sweet potatoes are packed in 5-lb. open-mesh bags. Ten of these small bags go into a 50-lb. multiwall baler.

The outer bag consists of three plies of 60-lb. multi-

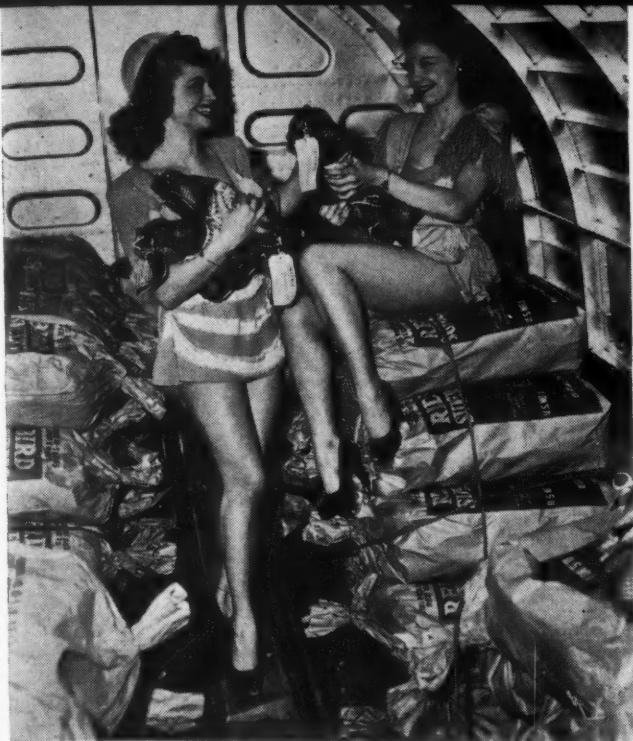
wall heavy shipping paper, such as was used to manufacture containers for overseas shipment of food supplies for landing parties and amphibious operations.

The outer container is a 21-in. by 42-in. pasted, open-mouth baler, 3/60, with a 9-in. bottom side. It is printed on one side in three colors—red, light blue and dark blue.

The bottom size is especially important, for the multiwall baler must provide a tight fit, in view of the fact that the baler itself must take its rigidity from the smaller bags inside. The packaging job was "tailor-made" for this specific customer, to fit a specific and unusual shipping need.

Mr. Dezauche considers this packaging idea of vital importance in future sales expansion. For more than 15 years, he has planned a program of merchandising packaged yams. He even experimented with packaged, identified yams as far back as 16 years ago, but he found the market not ready for the innovation. That did not stop his plans, however. Today, his research has told him that the time is ripe for identified, modernly packaged yams.

Research showed that only one and one-eighth meals per week included sweet potatoes in the United States. He further found by research that the average purchase of yams in retail food stores amounted to three pounds. He does not worry about overproduction, because in merely doubling the number of meals which include sweet potatoes, to two and one-fourth week, the



Two Olsen & Johnson cuties were hired for pictures like these to insure newspaper and magazine publicity for new packaging venture. Photo shows stowing of 50-lb. bags.

national demand will rise to twice what it is today.

The small bag was designed to hold five pounds because that represents one of the factors which Mr. Dezauche expects to use to increase per capita consumption. With yams neatly displayed in closed 5-lb. units, the housewife will automatically buy five pounds at a time instead of three.

In the past, all yams have been marketed "blind." That is, they were shipped in cases or crates, in 100-lb. units, to wholesalers, who delivered them to retailers in the same containers, or the yams were shipped in bulk in carloads without containers at all.

In either case, retail orders were filled out of the bulk containers and the product lost brand identity as it went into the housewife's hands.

Thus a shipper was little encouraged to maintain high quality in his shipments.

Under his packaging program, Mr. Dezauche proposes to pack only the top one-third of the crop for fresh sale. The remaining two-thirds go into dehydration, feed and canning.

Thus by selecting only the best one-third of the crop for packaging, he naturally will put up a superior product. By identifying it straight through to and including the consumer, he expects to create a demand for his brand of yams, from the consumer right on down to the wholesaler or commission merchant. Thus he is able to demand a premium price for a premium product.

Recently the organization unveiled two merchandising promotions which point up the company's thoughts and its merchandising plans for the immediate future.

The company received a lot of national publicity in connection with the first of these two promotions. It



PHOTO, COURTESY BEMIS BRO. BAG CO.

Felix Dezauche (in plane), presents bags of yams to representatives of Gov. Green of Illinois, Mayor Kelly of Chicago, as part of publicity buildup for first shipment.

chartered three large cargo-carrying airplanes to deliver sweet potatoes to the Chicago market, in an experimental one-day packing-plant-to-consumer service.

The fleet delivery was admittedly a "stunt" in order to focus public attention upon Louisiana yams and the company's new packaging program.

The Dezauche organization does not rely solely on identification and packages to sell its product. Mr. Dezauche has found that advertising in trade and consumer media is a necessary part of putting over so radical a departure as packaging and identifying yams. He learned this when he was ready for his first shipments of packaged yams to the Chicago market.

He went to the heads of two large Chicago chain food stores, to whom he'd been selling regularly. He offered them distribution of as (*Continued on page 172*)

Store operators reported that packaged yams "just walked away" from mass displays like this one. Consumers found themselves buying five pounds instead of the usual three.





Foil ice-crusher package

A fibre can with metal ends provides a sturdy package for the Dazey Triple Ice Crusher, made by the Dazey Corp., St. Louis,—brilliant aluminum foil outer wrap printed in blue, white and red, adds the necessary sales appeal.

The package arrives at the retail outlet completely sealed and entirely tamperproof. It is not opened until the consumer tears open the string-opening around the top of the container. The knocked-down ice-crusher is further protected by an inside corrugated tube which extends above the edge of the outer container to form a telescope box for storing purposes in the home. Squares of corrugated cushion the crusher, top and bottom and between items.

Blue, red, black and white printing on the natural brilliance of foil provides a cool, clean-looking label. Front and back, the panels are the same. Down one side panel are line drawings, cleverly spotted on blue, suggesting uses for crushed ice. The other panel is a stylized drawing of the ice, from cube to small granules, falling down the box.

CREDITS: Fibre can, Seflon Fibre Can Co., St. Louis, Mo. Foil label, Reynolds Metals Co., Richmond, Va.

DESIGN HISTORIES



A package with protection

A design motif of babies romping over a sturdy pink and blue folding carton is used by the Glasco Products Co., Chicago, to package its latest baby item—'Round the Clock with Baby—a utility jar and tray set.

The four jars, decorated in blue, are packaged in individual folding cartons for added protection from breakage. The size of the outer carton is determined by the size of the urea tray which is slipped into a chipboard sleeve and laid on the bottom of the carton. Over this is placed a die-cut platform with cutouts to hold each of the four jar cartons.

The jar covers are held in place by means of small die-cut cards that slip over the knob of the lid and fit snugly into the carton holding the jar down and preventing any shifting.

Each carton is identified as to its contents and the customer is advised by the copy on the platform to lift it out to remove the tray.

Promoted as a gift item, this baby-care set combines protective packaging with eye-appeal.

CREDIT: Package, Randolph Box & Label Co., Chicago.

A carton with sales-appeal

The Zenith Optical Division of Polan Industries, in search of a more economical and at the same time a more attractive container for its Fireglas Coffeemaker, has finally decided upon this two-color varnished white patent coated carton.

Since the coffeemaker is a part of the trade-named "Smart Set" of glass utensils currently promoted as quality products, the package design theme is planned purposely to put across this story. After dummy cartons were made it was found that the front and back panel could be used as display space to show the product. The side panels present sell copy.

Originally it was planned to pack these coffeemakers six to a corrugated shipping container—three in corrugated and three in the printed containers. However, it was soon discovered that customers preferred the new container and the corrugated ones had to be abandoned.

The former method of interior packing is still used to protect the glass—two die-cut corrugated platforms to float the coffeemaker, absorb shock and keep the carton squared up.

CREDIT: Carlton, Robert Gair Co., Inc., New York.



DESIGN HISTORIES

A transparent sea garden

Transparent acetate containers with rounded corners provide visible packaging that shows off the amusing satin starfish, seahorse, turtle, lobster, sunfish and oyster which make up the new line of sachets for Parfait Sales called Neptune's Garden.

In the packages, they are bedded in shredded cellophane and the whole assembly is covered with a fine fish-net-like material to enhance the sea story. The packages make attractive impulse gift items.

The containers, of 0.010 and 0.0075 acetate sheet, are fabricated by the Parfait company. Tight-fitting lids make the package a fairly tamperproof one for display purposes. In addition to its obvious value as a container with high display value, the transparent box immediately suggests itself for re-use as a box for handkerchiefs or hosiery.

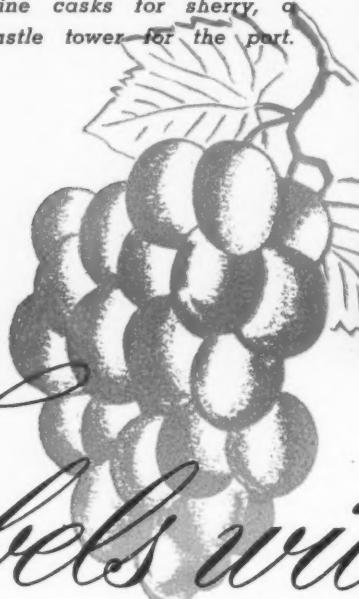
For additional protection in shipment, the acetate containers are packed in chipboard set-up boxes which, incidentally, can be used in the retail outlets until the sachet is ready for display or sale.

CREDIT: Acetate, Eastman Kodak Co., Rochester, N. Y.





Imaginative design, bright and unusual colors and fine printing distinguish new labels (right) for products bottled by the Quebec Liquor Commission from old (left). Purchaser is aided by recurring design theme which identifies wines of different type but of the same family—grape cluster for light table wines, wine casks for sherry, a castle tower for the port.



Labels with a purpose

Creation of new wine and liquor labels for the Quebec Liquor Commission was an unusual design job in that full attention could be given to aesthetic and cultural aspects, with less than usual emphasis on merchandising features.

This Government-operated liquor monopoly was not particularly interested in selling *more* wine and liquor. It sought to use labels to educate the public's taste and help guide selections.

The Quebec Liquor Commission, established some 25 years ago as the first agency of its kind in North America, operates in an unusual manner. Some brands reach the Commission's warehouse already bottled, labeled and ready for sale. Others are shipped to the warehouse in barrels and are bottled and labeled by the Commission. The latter bear the Commission's own name and brand, and it was here that labels could be adapted to the educational aims it had in mind.

Labels used by the Commission had always been rather drab and uninteresting, and did not compare favorably in appearance with those on privately branded products which appeared with them on liquor store shelves. In the change, therefore, it was sought to make the labels more colorful and appealing.

With these objectives outlined, the designer was given free rein. The results are indicated by some of

the labels for wines and rum pictured on these pages.

The designs are not only very colorful and imaginative—conveying in each case a feeling of the taste and character of the product—but they cleverly link together products of a similar nature, so that buyers will be encouraged to explore, for example, the several varieties of rum rather than just one with which they had become acquainted. The buyer is aided in identifying members of the family grouping by the fact that the generic product name—as “rhum”—is played up much more strongly than the brand name.

For rum, the designer chose marine and nautical subjects as identifying symbols. There is an anchor against the blue background of the “L’Aviso” label, with the word “Rhum” superimposed in gold. Touches of red and black complete the label color scheme. The trade name “L’Aviso” is subordinated to the word “Rhum.”

For a series of Portuguese wines, the common symbol is a stylization of a castle tower which is found in the Portuguese coat of arms. The word “Porto” is very boldly presented, highlighted against the lustreless black background of the label and the shininess of the bottle itself.

Sherry wines are identified by the bold black-and-white outline of wine casks which appears in the foreground of the label. This helps to convey the impression



... they delight the eye and aid the selection
of Quebec's Government-bottled wines and liquors

of quality which is traditionally imparted to sherry by slow aging in casks. Again the common name "Sherry" predominates over the specific type, as "Jerez."

In the case of the everyday table wines, Bordeaux and Burgundies, the treatment is somewhat different. Here the type, as "Bergerac" or "Pineau," is considered more important information than the fact that it is "Bordeaux Blanc" or "Bourgogne Blanc," and hence is played up much more strongly. However, a distinct grouping is given to all these table wines by the fact that the design is identical for all, with only the background colors and the lettering differentiating. The design is a linear drawing of a cluster of grapes, against the faint outline of grape leaves.

An exception to these outstanding departures from conventional design is the label for "Le Heros" Cognac. Here a concession has been made to the unwritten law that says a label for cognac must be a gilt affair with a scroll or leaf design inside squared panels and severely squared black lettering. While giving the general appearance of conforming to this tradition, the cognac label nevertheless shows touches of the designer's modern sprightliness.

For the printing of all these labels, the designer has specified crayon inks, as being the ones which would most closely resemble *gouache*.

An unusual touch is the fact that each of these labels is signed by the designer, in small type in the lower right-hand corner.

CREDITS: Labels designed by Raoul Bonin, Montreal; printing by North Print Shop, Montreal; engravings by La Photogravure Nationale, Ltd., Montreal.

New rum label (right) uses nautical theme, has outline of anchor against blue background, bold "Rhum" in gold.





1



2

1—Two sizes of corrugated cartons are used for this unique laundry packaging procedure at Mayfair Laundry, Providence, R. I.—22 by 12 by 8 in. and 22 by 12 by 12 in. The corrugated containers are stored in bins at the side of apparatus. Paper liners or bags designed for this specific purpose are kept in a bin in the back of the equipment. Operator sets up a box on the table, secures it in place by means of a foot pedal device and then inserts paper liner in box. 2—Flaps of paper liner and corrugated box are secured by metal holding device moved into engagement with flaps of box, leaving top free for loading.

Delivering laundry

... in economical, multiple-trip cartons

Laundry packaging presents many specialized problems. It must carry clean, laundered goods back to the customer in an attractive condition. It must promote the name of the laundry. At the same time the customer must not be irritated by over-packaging that's hard to dispose of or that makes her think this adds to the cost of laundry service.

A comprehensive article on this subject in MODERN PACKAGING (Feb. 1946, p. 91) brings to light an in-

teresting story from John F. Broadfoot, president of the Mayfair Laundry, Providence, R. I., which describes how he is solving these problems with a patented apparatus and packaging method of his own invention illustrated in the accompanying photos.

While the invention is particularly adaptable to the packaging of clean laundry, Mr. Broadfoot suggests that it may be an effective method for other applications where there is a requirement for holding a pack-

5—The box flaps are folded down and the operator buckles the strap to secure the box which is now ready for delivery. Printing on the box provides trade identity. 6—The filled boxes with customers' names and addresses affixed can then be loaded into the trucks conveniently, making delivery easy for the driver.

5 (Page 112)



6





3



4

3—Flat work is loaded into the bottom leaving the top space for wearing apparel, so that all laundry for one customer goes into one package. There is no chance of crushing. 4—The flaps of the paper line are then folded down over the laundry and secured with tape. The box-holding device can now be released.

age while it is being loaded and where the container may be used for more than one trip.

At the Mayfair Laundry, it is said, this method showed savings of 30% in packaging costs in one year. Both flat work and wearing apparel may be put into one bundle so that there is only one package for the driver to deliver, except in the case of extra large orders. Two packages are then used and designated with a gummed sticker which reads "two packages" on the box containing the price list.

Customers, particularly those living in apartments, like the packages, because there is just one liner to dispose of. They also like the idea of receiving everything in one package, and say the laundry looks better as there is no crushing.

Drivers like the packages because they are so easily handled. The driver simply picks up one of the boxes by the heavy cotton strap, carries it into the home of the customer, unbuckles the strap, slips out the inner paper

liner containing the laundry, folds up the carton, takes it back to the truck and it is ready for re-use in the plant. With reasonable care, Mr. Broadfoot says, the corrugated cartons may be re-used for about six months.

Girls in the packing room like these containers because they eliminate unnecessary handling of bundles. Each piece of clean laundry is dropped into the box as it is declipped from its marking identification. Previously the girls had to declip the flat work and stack it as the clips were removed; then carry it to a table where it was wrapped. The same procedure was followed for wearing apparel. Since elimination of chipboard boxes for wearing apparel, the girls have more room to work because they are not surrounded by stacks of boxes. In fact, the wrapping table is no longer needed. Production in the packing room is increased as practically all walking has been eliminated. A girl makes only one trip from the sorting bin to her station where the bundle is declipped and packaged.

7—When the laundry reaches the customer's home the bag liner is removed from the box. Customers like the idea of a liner because it seems economical; is easily disposable after clean laundry is removed. 8—Driver takes knocked-down container back to the plant, ready for re-use. With care, cartons last for six months.

7



8



(Page 113)

Plywood cooperage

...a British innovation



Six identical staves form the resin-bonded plywood cask. Construction and repair are simple leakage minimized.

Necessity being the mother of invention, shortages of natural timber in Great Britain have led to an interesting new development in cooperage in the form of a brewers' cask made of resin-bonded plywood.

Timber normally used by the brewer's cooper is oak—the Russian species being preferred in Britain—but stocks are now practically non-existent and the position is not likely to improve. At any rate, the new plywood cask appears to have advantages which may gain for it a permanent place.

Several British firms are engaged in perfecting the manufacture of this cask, and at least one—Merron, Ltd., of London—is in quantity production. The first cask to pass the brewer's critical tests is a "kil" of 18 imperial gallons capacity, made by Merron in close collaboration with Truman, Hanbury, Buxton & Co., Ltd., old established London brewers who have been the first to put the molded plywood cask into actual service in the brewery.

In exploiting a new application for a modern material, all the advantages of the allied manufacturing technique should receive consideration. Why, for example, should a cask continue to be made from some 20 staves offering, as it does, a similar number of possible sources of

leakage, when in the light of a modern technique half a dozen identical segments or staves may be economically and conveniently produced to do the job much better? Here it would seem that an ancient craft may fall a victim to modern progress. The cooper's art has changed but little with the course of time, remaining a skilled handicraft but, nevertheless, a comparatively crude manufacturing technique handed down from one generation to another.

Construction

From Fig. 1 it is apparent the Merron "Sextant" cask, as it is called, is constructed from six identical staves with two similar end units. Construction of both staves and ends comprise 16 veneers, 4 of which are arranged intermediately throughout the $\frac{5}{8}$ -in. thickness with the grain at 90 deg. to normal providing thereby some stability from possible shrinkage. Inner face veneers are of oak, the desired species, and to insure balanced construction outer face veneers are of the same variety while intermediate veneers all are of birch. Attachment of staves and ends follows more or less normal practice by the cooper (Fig. 2) and when clamped tightly together by the outer steel hoops insures a leakproof joint.

Manufacture

Veneers are first shaped to approximate size and coated with "Catacol," a phenolic resin adhesive. A very economical glue spread is employed to guard against the possibility of excess resin percolating through to the interior surfaces. Manufacture is by the low-pressure laminating process peculiar to molded plywood technique, the veneers being arranged on a wood

TABLE I.—MERRON "SEXTANT" CASK. RESULTS OF BREWER'S TEST

No.	Details	Result
1	Filled with hot water, temperature 160 deg. F. with soda solution added and allowed to stand for 12 hours	Satisfactory
2	Filled with hot water, temperature 160 deg. F. with a quantity of salt added and allowed to stand for 12 hours	Satisfactory
3	Filled with hot water, temperature 160 deg. F. and allowed to stand for 6 hours	Satisfactory
4	Cleaned in a Goliath cask washing machine passing over eight hot liquor nozzles (approx. 190 deg. F.) at 200 p.s.i. pressure	Satisfactory

mold and covered by a rubber blanket from which the air is exhausted from underneath. The whole assembly is then placed within an autoclave for the curing process during which, under the simultaneous action of heat and negative pressure, the resin adhesive sets to bond the veneers into a homogeneous material of the required shape. Due to the fact that all staves are identical, a minimum number of molds are needed for quantity production.

End units are manufactured by the same process, but not being of complex shape no mold is necessary. Following the normal curing process, any excess resin is removed, the segments finally trimmed and ends tapered around the periphery. After passing the inspection department, the cask is prepared for dispatch to the brewers who themselves undertake final assembly as and when required. In the meantime they are stored in the knocked-down state.

Advantages

Numerous advantages are claimed for the "Sextant" cask over the normal type. Production can be immensely speeded up and there is considerable economy in timber used. The six staves are manufactured to very close limits and therefore become standardized units that are interchangeable. A damaged cask may therefore be repaired immediately from a stave in stock without being out of commission pending a hand-made replacement.

In addition, shipment of casks for export is also facilitated by this means, whereby, packed as unassembled units, considerable space is saved. The brewer's cask must inevitably be subjected to considerable rough handling and it is said to have been proved in service that the new cask stands up to this treatment much better than its predecessor.

Normally all casks are provided with a lining in the form of a special liquid applied by brush to the interior surfaces, preventing impurities in the wood percolating through to the contents. For lager beers, pitch is sometimes used for this purpose, applied by heat in a special machine. Due to the technique involved in the construction of the Merron "Sextant" cask, no lining of any description is found necessary. Freedom of excrescences inside, where sediment could collect

after a period in use, in spite of the efficient methods of cleaning, is a feature which strongly appeals to the brewer.

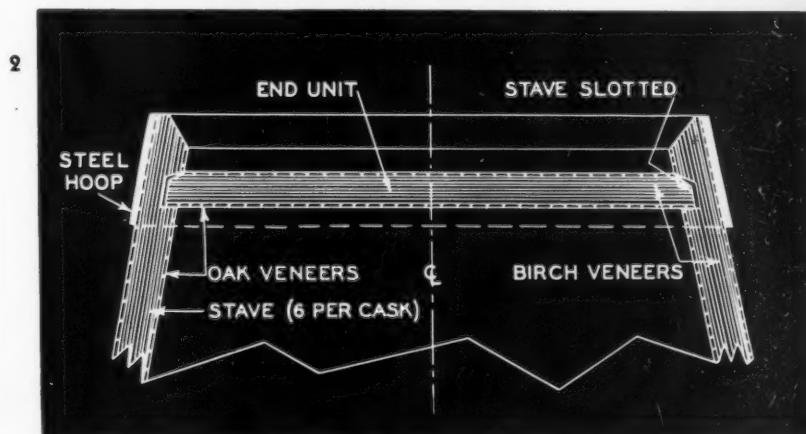
The brewer's test

The cask was not put into service anywhere until the most severe tests had been satisfactorily fulfilled. As an example Truman, Hanbury, Buxton, and Co. Ltd., have supplied particulars of a typical test, as shown in Table I.

The final test was to fill the cask with beer, from which samples were taken daily over a period and submitted for analytical tests. No impurities or any contamination of the contents were found in any of the sample of beer submitted during the entire period of this test.

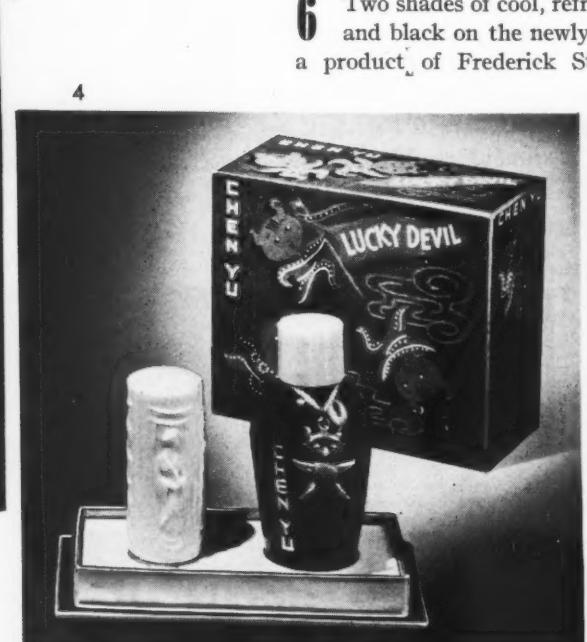
It is now some twelve months since the first few casks of this type were put into service on an experimental basis, during which certain modifications have been made to facilitate production. Nevertheless the brewers concerned have paid strict attention to the condition in which their beers have been received in the trade from these casks, and no unusual incidents have been reported.

Apart from the brewing industry, many others can make use of the cask or barrel as a suitable container for their products. Inquiries received indicate that millers, vinegar manufacturers, soft drinks manufacturers and others are anxious to use the resin-bonded plywood cask, as soon as stepped up production facilities will permit.



Above, the cross-section shows attachment of ends and staves. Right, the Merron "Sextant" 18-gal. "kil" as assembled at the brewery.

Packaging



1 A clean-up job has been done on Gimbel's family-size tooth-powder package which noticeably increases its visibility-quality on the retail shelf. In addition to the simplification of the green and white design, the can has been shortened a bit by the use of a new slide-closing top.

2 A black satin-covered hinge lid box houses the newest Primrose House perfume—Witchery. The perfume, itself a deep mahogany in color following the present trend for scents, rests on a bed of gold-colored satin with the face of the glass-stoppered bottle covered with a delicate lace-like design symbolic of the name. Smaller sizes are packaged in gold-colored foil-covered boxes with the lace design in black.

3 The first of Kraft Foods Co.'s post-war products—Smo-kay—has appeared on the market in the familiar 5-oz. re-usable Swankyswig glass with lithographed metal friction top. The label follows the general design of the company's other glassed cheese spreads with special emphasis on the new name. Glasses, Hazel-Atlas Glass Co., Wheeling, W. Va.

4 Chen Yu adopts a cartoon technique for the packaging of its newest lacquer—Lucky Devil. Chubby little devils roll over the cover of the vivid green telescope box and added package attraction is a tiny Lucky Devil charm fastened to the neck of each bottle.

5 A boy and his dog symbolic of the tradename, Pal, are depicted on the label for peanut butter packed by the Martin Food Products Co., Chicago, Ill. Recently, this design was tied in with a promotion stunt involving a limerick contest in which 60 puppies were given away. Caps, Aridor Cap, Chicago, Ill. Jars, Ball Bros. Co., Muncie, Ind.

6 Two shades of cool, refreshing green replace blue, orange and black on the newly designed label for Astring-o-sol, a product of Frederick Stearns & Co. Surveys showed

Pageant

that the old label could not be read easily at a distance of six feet and therefore much of the copy was removed from the label and cleaner looking type adopted. In addition, the outside folding carton was removed for better visibility.

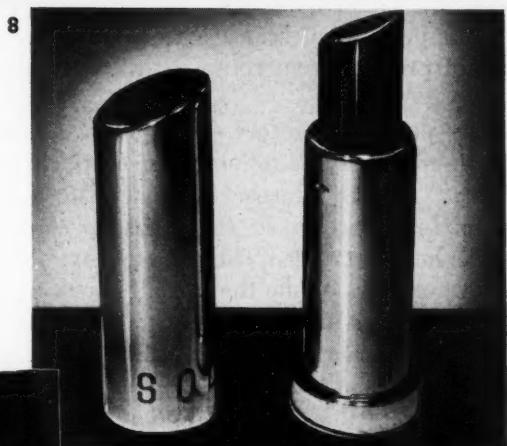
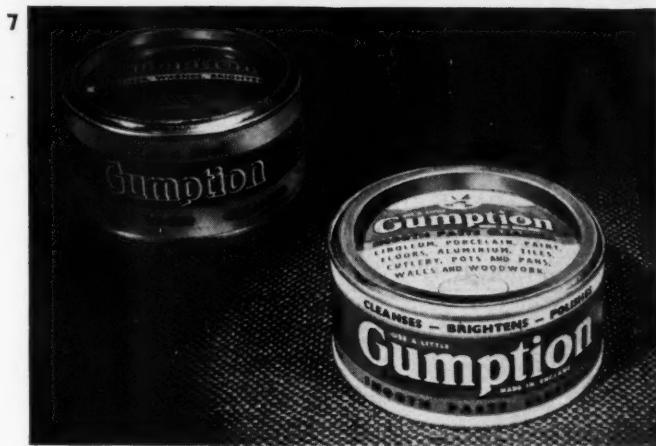
7 Gumption, a general-purpose paste cleaner well known in England, comes to the American market in a special dress. A four-color, lithographed job, the friction-top metal container (foreground) uses white lettering outlined with black for the name. Crisp green, banded top and bottom with orange, gives this package self-service store appeal as contrasted with the original package in dull orange and olive-green still retained for the British trade.

8 Campana Sales Co., puts its new Solitair "Fashion Point" lipstick into its permanent package—a brass case. The top of the case is slanted and curved to match the lipstick within—the shape, incidentally, the company claims 54% of the women prefer. An exact duplication of the color of the stick decorates the top of each case, saving a good deal of smearing on the backs of hands to select the right shade.

9 Magic Onions, packed by Basic Vegetable Products Co. and distributed by H. J. Heinz Co. for hotel and restaurant use, features a panel of directions giving the equivalents of fresh onions to simplify use by chef or cook who might be unfamiliar with this new product. The trade character attracts the eye to brand name. Cans, Continental Can Co., N. Y. Labels, Independent Lithograph Co., San Francisco.

10 Clean-cut red and white lithographed caps have been added to the complete line of condiments packed by the Horse Shoe Pickle Works, Ltd., New Orleans, La., to enhance merchandising value in the self-service store. The caps, used on stock jars, call attention to other products in the line. Caps, Crown Cork and Seal Co., Baltimore, Md.

10





At regular intervals, samples of filled containers are taken from the line, weighed, and the weight plotted on a control chart such as is shown on the opposite page.

Filling-weight control with \bar{X} and R charts

Henry P. Goode* and F. B. MacKenzie†

Economical control of container weight or volume is a problem that will always confront management in concerns that package powdered, granular or liquid products. If filling machines could be devised that would place exactly the right quantity in each container every time this problem would not exist. But, unfortunately, such a solution will probably never be found, particularly for those producing and packing on a mass-production scale. Some variation in the amount of product from container to container is inevitable.

Lacking perfect operators and equipment, the only solution in most cases is to follow the costly practice of overfilling; that is, to raise the general level of container fill high enough so that those packages that happen to be lightly filled will still be above the stated weight or volume. While the overfill in any one package may represent only a very small amount of the product, the cumulative quantity from a day's packaging usually amounts to a sizable loss to the concern.

The purpose of this article is to describe a relatively new tool that can be easily applied by packaging department management to reduce this loss to a minimum. The tangible results will usually be more cartons of goods packed ready for sale without any increase in the quantity of bulk product that is sent to the packing station. Along with this can go better assurance that all units are meeting the stated or desired minimum contents.

This new tool is a simple device called a "control chart," originated a number of years ago by Dr. Walter A. Shewhart of the Bell Telephone Laboratories. For some time it was used by only a few firms and then

only in the field of quality control. During the war, however, the field of its use was expanded and the technique adopted with great success by many concerns both in this country and abroad.

When properly applied in the packaging department these charts serve in a number of valuable ways.

First, they furnish a simple way of finding definitely the normal range of variation in fill from container to container at each packing station. Knowing this, it is easy (by means of the charts) to set and maintain the average fill at the lowest level possible without danger of underfilled packages being below the required minimum. This is perhaps the most important means by which they may reduce product loss.

Second, the charts may be used to initiate and guide engineering work toward eliminating or reducing causes of variation in the filling process. Study of the charts furnishes many clues leading to basic improvement of the machine or method.

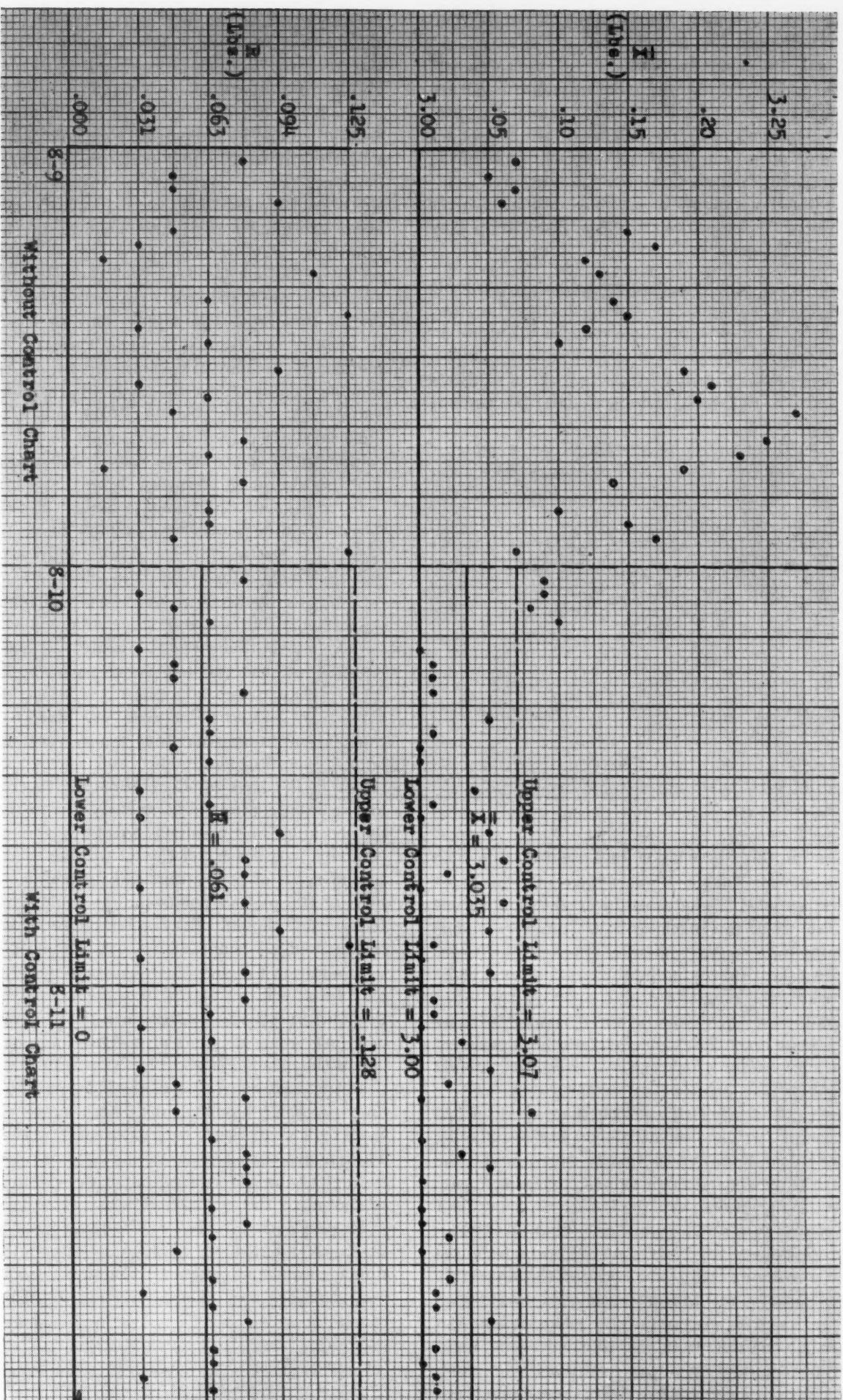
Third—and in some installations quite important—these charts furnish early warning of trouble or impending trouble. In a unique way to be explained later, any shift from a machine's normal manner of performing is promptly indicated by the chart so that suitable corrections can be made.

Fourth—and equally as valuable as the use just outlined—these charts show not only when to make adjustments or attempt other corrective action but also when *not* to do anything. In many cases application of the chart method has shown that numerous adjustments formerly made were really not necessary and probably did more harm than good.

The number of packages check-weighed for inspection purposes may often be reduced. The knowledge obtained from a few samples used in conjunction with

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† Albers Milling Co., Seattle, Wash.

INITIAL \bar{X} and R CHARTS FOR A TYPICAL INSTALLATION



Initial period of typical control chart. This one is based on hourly samples of five consecutive packages from each scale on four-unit line. It covers three days' operations—first day without control charts, second and third, with them.

the charts is much more extensive and accurate than the knowledge one gets from a relatively greater number of samples evaluated without use of the charts. Hence, equal or better weight assurance can be obtained along with a reduction in the volume of inspection. Where checking for contents destroys the product or container or for other reasons is expensive, use of the charts may reduce inspection costs substantially.

Using these charts at a packing station involves only a few simple steps. In a typical installation they would be as follows:

- a. At regular intervals, perhaps each hour, a sample of filled containers is obtained from the line. Three to ten or more units may be taken but in most cases five is the most convenient number.
- b. Each package in this sample is weighed or measured in the usual manner and the amount jotted down.
- c. From these values an average of the weights or volumes of the units in the sample is calculated. This average is known in control-chart language as " \bar{X} " for the sample.
- d. The highest and the lowest weight or volume in the group of containers is noted. The lowest is then subtracted from the highest to give the range in values for units in the sample. This difference or range is, in the language of the chart, called "R."
- e. The average for the sample is then plotted on the \bar{X} chart and the range plotted on the R chart, as shown in the accompanying illustration.

The final step then is to judge, on the basis of these postings (and perhaps those immediately preceding them), how the machine is now acting in relation to desired performance.

To assist in this, three guide lines are drawn on each chart, as shown. On the \bar{X} chart the center line is set at an average level around which averages for a sample should fall when the machine is set properly and is performing in its normal manner. Likewise the center line of the group of three on the R chart is set at a value around which the range for each sample as it is taken should fall. On each side of these central average lines is a limit line. Each pair of these limit lines encloses a zone *within which* values for samples should fall as long as all is going well.

Suppose, for example, the inspector or operator has taken a sample, weighed each of the packages, made the necessary calculations and plotted the average and the range on the charts. If both values plot near the desired values represented by the center lines on their respective charts, a safe assumption is that all is well.

If one or both points plot some distance from the expected average but still plot between the respective upper and lower limit lines it is still fairly safe to assume that things are going all right. The variation of the point in question from its expected value could happen under normal operating conditions.

Once, however, a value falls outside these limits it is a

definite signal to the inspector or operator that something has changed or gone wrong; that the machine should be stopped and adjustments made or assistance obtained for other corrective action.

The basis on which these limit lines on the charts are established can be indicated by outlining the causes of variations in weight found in any weighing or measuring machine. First, there will be variations from package to package resulting from a group of comparatively minor and more or less inherent causes such as machine vibration, play in bearings or other mating parts, minor variations in density of product, variation in amount of product in scale hopper and the like. Any one of these comes into play more or less according to chance and results in some variation in fill. A number of these are always present to join together in random combinations to result in a greater or less variation in container contents from unit to unit. The limit lines are placed on each chart so that the usual combinations of the above causes will produce values that will always plot between them.

In addition to the above, a second classification of variation-producing causes exists. These are causes that enter the machine or process only on occasions and that remain for a period to affect in a major way its output. Such causes might be the slippage of an adjustment, the failure of some minor machine member or a substantial change in the density or other characteristic of the product being packed. When this kind of change does take place it is almost always desirable or necessary to seek out and remove the cause of the trouble and thus return the process to its normal operating condition.

One of the keys to effective packaging control is to know, when containers taken from the packaging line for checking show a shift in weight or volume of their contents, whether or not the shift is due to one of these second types of causes that call for action. If one or both of the plotted points for the sample in question falls outside the limit lines on the charts, this is almost certain evidence that it is.

In addition to this, other signs of one of these causes may be a series of consecutive points plotting within the limit lines but hovering quite close to one of them, or a long series of points of which a large majority on one of the charts fall above or below the central line.

As previously mentioned, the chart not only reports that something has happened but in many cases gives some clue as to the nature or location of the trouble. The amount of such information that one may get from a study of the charts depends on the extent of knowledge of chart theory and familiarity with the operation.

The steps involved in locating these three important lines, while based on involved statistical theory, are simple to make in practice.¹ Briefly, they are:

- a. Samples are taken at regular intervals for an

¹ For the sake of brevity, all of this discussion is in very general terms. Those interested in looking further into this control method should secure a brief and simple manual that covers all details. It is "Control Chart Method of Controlling Quality During Production," American War Standard Z1.3, published by the American Standards Assn., 29 West 39th St., New York City. Price, 75¢.

- initial period long enough to permit about 24 or so samples to be collected. In many cases past inspection data is available that can be grouped into samples and used instead.
- b. The units in the samples are measured or weighed and the average and range for each sample calculated as previously described.
 - c. These values are plotted on suitable graph paper forming two separate charts as shown in the illustration.
 - d. An average is taken of the ranges for the 24 or so initial samples. This average range gives the figure to be used in plotting a tentative center

- line for the range chart. Likewise an average is taken of the averages of the samples to use in locating a tentative center line on the average, or \bar{X} , chart. These two lines are then placed on their respective charts.
- e. The average range is multiplied by suitable factors—taken from the manual mentioned in the footnote—to give the distance from the center lines at which to place the respective limit lines. These lines are then drawn in. If the plotted points all fall between the limit lines so drawn the data can be used to control subsequent operation. If they do not fall between these lines, certain

Fresh shrimp by air . . . in a protective package

Development of a water-vapor-proof, insulated shipping package has made possible the inauguration of daily air shipment of fresh, pre-cooled shrimp from Biloxi, Miss., to Detroit. The package consists of a heat-sealed Pliofilm pouch inside a double corrugated box which has insulating material between the inner and outer walls.

The development is the result of careful study of consumer requirements and the pooling of knowledge and facilities of several packaging, research and shipping organizations including:

Air Cargo Research, Wayne University, Detroit.

Goodyear Tire & Rubber Co., Akron, O., manufacturers of Pliofilm.

Shellmar Products Corp., Mt. Vernon, O., converters of the Pliofilm into pouches.

Hinde & Dauch Paper Co., Sandusky, O., originator and source of supply of "Insul-pak" cartons.

Ralph Duncan, Biloxi, Miss., the packer.
Chicago & Southern Air Lines, the carrier.

Anyone familiar with fresh seafood can readily appreciate the thinking of those first interested in expanding the market to include urban centers of the Middle West; those same people can just as readily realize the necessity for offering the product *fresh*. It was only after thorough tests all along the line from packer to consumer that the system was developed.

The freshly caught seafood is cleaned and pre-cooled to 33 deg. F., then 40 lbs. are placed in a Pliofilm pouch, previously positioned within a corrugated carton. The top closure is



PHOTO, CHICAGO & SOUTHERN AIRLINES

Insulated carton, Pliofilm pouch hold 40 lbs. pre-cooled shrimp.

accomplished by heat-sealing, and the bag is then virtually water-vaporproof, allowing the seafood to retain its natural moisture and flavor while preventing any leakage or odor.

Following careful gummed-paper tape sealing, the inner corrugated container is dropped into the insulated lined outer carton portion of the Insulpak, likewise completely sealed.

Since the package is very light in weight (10 to 15% of gross weight when packed), air freight was the obvious answer for shipment. Time in transit, packer in Biloxi to consignee in Detroit, is approximately 10 hours; temperature gain of the shrimp within the Insulpak is approximately $\frac{1}{2}$ deg. F. per hour—all of which means identical quality in Detroit as on the Gulf.

Not only will this fresh seafood service be enlarged but the same type of packaging will be expanded to include other products as rapidly as materials become available and the markets determined.

- adjustments to the data may have to be made.
- f. Through use of other factors in the manual the limits between which weights for individual packages are falling can be obtained. This knowledge will enable any desirable shift to be made in the average fill level (through machine adjustments or otherwise) to reduce the overfill to a minimum.
 - g. The lines are extended (modified if necessary because of possible changes just mentioned) for use in evaluating each subsequent point as it is plotted in the manner described earlier.

It should be pointed out here that use of the charts usually calls for little change in common inspection procedures. In most cases one will find that sufficient data in usable form is already being collected. Once the charts are set up, only the simple calculations to obtain the average and the range and the slight effort of plotting them on the charts are necessary to put the data in this much more useful shape.

Three-step usage

In the several Albers Milling Co. plants using this method the same general approach was followed in setting up for weight control. The chart usage was established in three steps. Usually each step was accomplished in a day. First, a record was made of a day's run independently of, and without participation in, the routine manufacturing operation. It consisted of results of the weighings of samples of five consecutive packages taken at regular periods from each scale unit on the line. At least 24 such samples were obtained. In the case of multiple scale lines, as for example one with four units, this consisted of six sets of five consecutive packages from each of the four scales. This first day's data served several purposes: as a means to compute limits and prepare the control charts; to show how effectively the usual practices were functioning, and as a basis to compare the results of the old method with results subsequently obtained by means of the control chart.

As the second step, the control limits were calculated with the aid of material in the American Standards Assn. manual. Where moisture loss or shrinkage was not a factor the chart was prepared for future operations with the lower control limit on the minimum weight value. After a short explanation to the inspector and operator, on the second day all scale adjustments were based on the weight control charts.

The necessary understanding and ability to use the charts was acquired with an ease that was astonishing to most of the workers. They simply obtained the average of five consecutive packages and noted the range or difference between the heaviest and lightest. Check weighings by the inspector were plotted on the charts and retained as part of the daily record. Test weighings by the scale operator were compared with the numerical value for the control limits. The operator was instructed to change adjustments only when the

average weight was outside the limits. That is, the control limits served to divide the observed weights into two groups: one in which the deviation from the desired average was due to natural and expected causes; the other where the difference resulted from assignable and hence correctable causes requiring a scale adjustment. The true conception of the meaning of this division into correctable and non-correctable groups is the one and only basis for efficient scale or package-fill operation.

Quite plainly, scale adjustments (changes) should not be made for variations that fall into the first group. Scale operators had made a practice of adjusting for many observations in this class. Conceivably correct scale settings were being changed. Actually it was possible to illustrate this in certain cases, particularly with large weight units. For example, the average of five 100-lb. bags was observed to be 8 oz. below the specified average setting. The operator started to add 8 oz. to the automatic scale. Inasmuch as the average was within the limit lines he was asked not to make the change. A few minutes later the average showed 4 oz. heavy. Thus the intended change would have worked against the scale. It has been a universal observation—whether scale, lathe or other machine—that the operator without the control chart invariably makes uncalled for changes, thus interfering with rather than assisting the machine in many cases. As mentioned, it is about as important not to make uncalled-for adjustments as to make the necessary changes.

In the third step, or third day's operation, the control charts were made part of the regular operating procedure. A comparison of the results with and without chart performance (first day with second day) never failed to convince the foreman and plant management as to the potential value of the new method. Invariably the charts showed advantages, the economies sometimes bordering on the spectacular.

Frozen food plant trials

Trials about as described indicated worthwhile savings in the filling room of a frozen pack plant. As a result the foreman operated control charts for the season that effected major economies. Likewise the method has been used to advantage in canning, cereal, and other food plant packaging.

The problem of setting up for this method of weight control is encompassed in the charts illustrated. These show the initial data establishing the method in a cereal plant. Weights for the first day (8-9) were taken independently of the packaging operation, control limits calculated and the charts prepared for the next day's operations. The first weighings on the second day (8-10) showed four units of the multiple scale line out of control, hence requiring adjustment. Thereafter the random check weighings by the inspector showed good performance. The weighings by the scale operator, which do not appear on the record, were the basis of the con- (Continued on page 172)

Divided packets

protect and identify piston rings

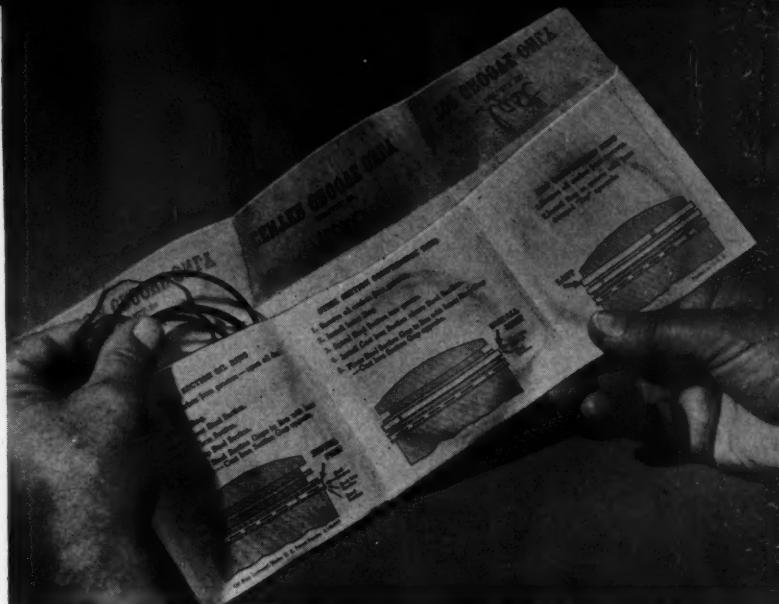
The volume of replacement piston rings sold annually in the United States is numbered in the hundreds of millions. This is understandable when it is pointed out that a "ring job" for a six-cylinder car requires 18 rings if the pistons are of the three-ring variety and 24 where the pistons accommodate four rings each.

The packaging of piston rings for sale to garages, super-service stations and other establishments doing automotive repair work involves two primary considerations—protecting the highly finished parts against deterioration during the six months or so which may elapse before they are installed in an engine and identifying them to insure placement in the correct groove of the piston. To function efficiently, the rings cannot be interchanged in location, since each is designed for a specific job.

A most satisfactory method of packaging piston rings is to place them in sectioned envelopes whose pockets—two, three or four—contain one full set of rings for a single cylinder. Each pocket carries printed instructions explaining which ring is within, its correct location on the piston and the order in which it should be installed, with supplementary information on the proper installation method. In some cases, the envelopes are printed in different colors to identify ring type and location.

One large paper converter, a leading supplier of this special kind of package, has just brought out new three- and four-pocket envelopes for Ford and Lincoln Zephyr replacement piston rings which embody the latest developments in package construction and

Complete set of Ford piston rings is packaged in eight printed envelopes, a single envelope containing rings necessary for one piston. Folding carton with perforated lid provides convenient package for entire set. Four-pocket envelope in foreground, not a part of this set, illustrates types used for pistons requiring four rings.



Division of greaseproof envelope into individual pockets keeps the rings from becoming mixed and simplifies the work of the mechanic by indicating the correct order in which they should be installed on the piston.

labeling. The four-pocket type is necessitated by the motor construction of the 1946 Ford V-8, which uses a snap oil ring below the wrist pin in addition to the three customary rings near the top of the piston.

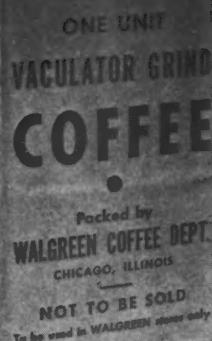
Paper used in the ring envelopes is a 40-lb. bleached greaseproof stock made to the company's own specifications. It must be completely greaseproof because some types of unplated rings are dipped in light machine oil and packaged while dripping wet to forestall rust and corrosion. Also, the pH of the paper is closely controlled between 6.0 and 7.5 so that no acid is present to pit the smooth surface of the rings and impair their performance. The envelopes are printed, die-cut and formed on automatic machinery developed by the converter. A special type of adhesive secures the end seams and those which divide the envelopes into separate pockets. This gum, not being water soluble, cannot pick up moisture and transfer it to the rings.

The envelopes are printed at very high speed, using oil base inks with aniline dyes and volatile solvents. One color must be dry before the next goes on, even though the successive applications are almost simultaneous. The new Ford ring envelopes are printed in black and purple on both the three-pocket and four-pocket types, while the Lincoln Zephyr envelopes, of three-pocket construction, are in black and red.

Envelopes are delivered to the piston ring manufacturers with top flaps prefolded—a detail which saves considerable time in the hand packaging operation customarily used on these products. Because a single manufacturer may produce as many as 5,000 different types of piston rings, the difficulty of setting up for automatic packaging can be easily appreciated.

Treatment followed on the Ford four-pocket piston ring envelope illustrates how labeling is employed to prevent mistakes by the (Continued on page 188)





KRAFT RESTAURANT BAG

Walgreen Coffee—cited for ready product and use identification in restaurants and hotels. Distributor, Walgreen Drug Stores, Chicago. Bag by Benj. C. Betner Co.



COFFEE CARTON

Café Coffee—cited as outstanding example of poster-like simplicity, bright modern design. Distributor, Vancouver Supply Co., Ltd., Vancouver, B. C. Carton, National Paper Box Co., Vancouver; liner, sealing machine, Haugh's Products, Toronto.



CONDIMENT PACKAGE

Spice Island Vinegar—cited for tasteful restraint of label design, visibly suggestive of quality. Distributor, Spice Island Co., San Francisco. Closure, I. F. Schnier Co. and Armstrong Cork Co.; lithography, Louis Rausche Co.; bottle, Hazel-Atlas Glass Co.; label design, Walter Landor & Assoc.



COFFEE CAN

Fleetwood Coffee—cited for legibility and shelf appeal. Distributor, Fleetwood Coffee Co., Chattanooga, Tenn. Closure and sealing machine, American Can Co.; packaging machine, Triangle Package Machinery Co.



BULK TEA CARTON

Symons' Tea—cited for ability of design to convey effect of choice quality. Distributor, Symon Bros., Saginaw, Mich. Carton, Rossotti Lithographing Co.



Boscul Coffee—cited for poster-like simplicity and use of visible coffee for color contrast. Distributor, William S. Scull & Co., Camden, N. J.; jar, filling and sealing machine, Owens-Illinois Glass Co.



FLAVOR PACKAGING

Durkee's Vanilla—cited for smartness, ease of identification, distinctive trademark. Distributor, Durkee Famous Foods, Elmhurst, N. Y. Bottle, Owens-Illinois Glass Co.; carton, Shelby Paper Box Co.; packaging machine, Stokes & Smith Co.



COUNTER DISPLAY

Vaculator Coffee Maker—cited for promoting colorful tie-up of raw material and finished product. Distributor, Hill-Shaw Co., Chicago. Display by Philipp Lithographing Co.

Prize-winning packages

Seventeen winning entries in the tenth annual Spice Mill competition for outstanding packages for coffee, tea, spices, flavors and related products were officially unveiled during the annual convention of the National Coffee Assn., held at the Edgewater Beach Hotel, Chicago, Sept. 9-11.

This year's packages and display units differed from war period entries in two important respects—far more packages were entered in all classifications, and tin came back into the running relatively strong in numbers. The latter development, according to Spice Mill, is "clearly a postwar trend towards prewar status."

Nevertheless, evaluating the entries as a whole, Spice Mill concluded that most postwar design in food packaging is still in the offing, hampered by continuing material shortages. Despite high group ratings, it was felt that many coffee packages might well be evaluated again for possible improvement, while labels on many cans and jars should be examined from the viewpoint of achieving improved "poster-like" simplicity.

SHIPPING CONTAINER

Don-Dé Coffee—cited for use of available surfaces for positive product promotion. Distributor, Weil & Co., Cleveland. Shipping carton, Ohio Boxboard Co.



SOLUBLE COFFEE

Sol Café Coffee—cited for freshness of color, quick reference directions, execution of design. Distributor, Great Star Soluble Coffee Co., New York. Lithography, Ferdinand Gutmann & Co.; jar, W. Braun Co.; packaging machinery, Stokes & Smith Co.



SPICE CAN

Durkee's Nutmeg—cited for smartness, easy product identification and distinctive trademark. Distributor, Durkee Famous Foods. Can, American Can Co.; packaging machine, Stokes & Smith Co.



FLAVOR GROUP

Burnett's Flavor Chest—cited for smart gift box, practical packaging. Distributor, Joseph Burnett Co., Boston. Bottles, Anchor Hocking Glass Corp., and Owens-Illinois Glass Co. Cartons, National Folding Box Co.



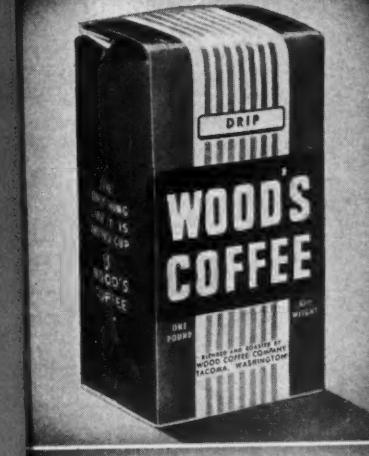
TEA BAG CARTON

Blue Ribbon Tea Bags—cited for arresting poster-like simplicity, effective colors. Distributor, Pure Gold Mfg. Co., Ltd., Toronto. Carton, Thompson Folding Paper Box Co., Toronto.



COFFEE BAG

Wood's coffee—cited for striking shelf recognition and bold color values. Distributor, Wood Coffee Co., Tacoma, Wash. Bag by Benj. C. Betner Co.



SPICE GROUP

Spice Island De Luxe Herb Chest—cited for good taste and ingenuity in design to achieve good effect. Distributor, Spice Island Co., San Francisco. Carton, Acme Paper Box Co.; closure, Armstrong Cork Co.; glass, Kimble Glass Co.



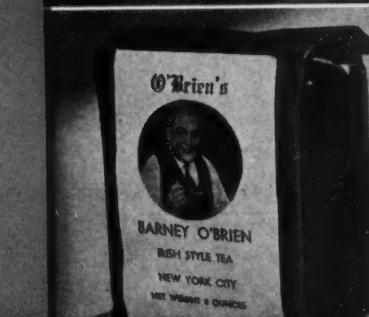
UTILITY SPICE CAN

Claremont Pepper—cited for quick, sure, easy operation of dispensing closure. Distributor, McClintock-Stern, Inc., San Francisco. Can and closure, American Can Co.; packaging machine by Triangle Package Machinery Co.



FLEXIBLE TEA BAG

O'Brien's Irish Style Tea—cited for direct refreshing simplicity of approach. Distributor, Barney O'Brien, New York City. Package and liner, Thomas M. Royal & Co.



es for tea, coffee, spice

The 17 blue ribbon winners were selected by Walter Dorwin Teague, prominent industrial designer; Richard F. Bach, dean of education and extension of the Metropolitan Museum of Art, and Clementine Paddleford, food editor of the *New York Herald-Tribune*. One winning entry was designated in each of the contest divisions.

Basing their decision on close study of hundreds of entries, the judges rated coffee and tea packaging tops as compared with other foods and next to cosmetic packaging as compared with other fields. Design quality was cited as the basis for these ratings.

Cans, glass jars and bags were pronounced best in the coffee field from the design standpoint. Aside from the physical characteristics of the containers, bag design was simple and rich in shelf appeal. Most of the can and jar entries, it was pointed out, "did not use color, type and layout to get the full possibilities for desirable 'poster-like' simplicity. Blue ribbon winner Boscul Coffee jar was a notable exception."

Highest flying package

... carries a robot weatherman 15 miles into the stratosphere



PHOTO COURTESY U. S. WEATHER BUREAU

Striking new evidence of the strength and protective qualities of coated fibreboard is found in this story of the package that flies 15 miles straight up every day to record weather observations and radio the data back to earth. Mass-production practices keep the package cost low.

The highest flying container in the world is a sturdy little corrugated fibreboard box, 8 by 4 by 8 in., which houses a robot radio sender and equipment to measure weather conditions in the stratosphere. The equipment itself is ingenious and complicated; yet a relatively simple container affords the protection which makes the mechanism as practical in use as it is in theory.

It is well established that the accuracy of weather predictions will be materially increased by a knowledge of upper atmospheric conditions. Long ago, scientists devised instruments capable of making the necessary measurements, and as far back as 50 years ago experiments had been conducted in sending such equipment up in wicker baskets attached to unmanned balloons. When the balloons burst, due to the difference between the internal pressure and that of the rare upper air, parachutes wafted the equipment to the ground. There was, however, a serious disadvantage in these early sets in that the data collected were recorded on cylinders in the balloon "sondes," or messengers, which might not be found until months later when the information would have value only for research purposes and not for practical prediction. It was largely for this reason that such methods remained experimental and that the balloon was eventually supplanted by the airplane as a means of carrying the instruments aloft.

However, in about 1936 the National Bureau of Standards developed a radio meteorograph system for the Navy. The important improvement was the addition of a miniature radio transmitting station so that the data could be sent to the ground instantly, making

1—Attached to parachute and free balloon, miniature radio-station-in-a-box ascends as high as 15 miles, recording and transmitting weather data, before balloon bursts, permitting set to float back to earth. Despite storms and jolts, package protection is such that radiosondes may be recovered and re-used several times. 2—Close-up of high-flying fibreboard box. This one has foil surface. Note ring for attachment to balloon, wires for antenna.

recovery of the sets no longer essential. With this development the balloon-borne radiosondes superseded airplane ascents. Since the balloon ascents were less expensive, more could be made. Balloons could be sent up in storms, when it was particularly important to collect data but when airplanes could not fly. Furthermore, the balloons could reach a height of approximately 15 miles—far higher than weather planes could go. These were considerations which outweighed the fact that protection of the equipment would be a more difficult task under these circumstances.

At the receiving station on the ground, equipment automatically interprets the note received as a humidity or temperature record and the changes in the elevation, or contact position, indicate the air pressure.

The simple, efficient fibreboard container used today contrasts sharply with some of those which housed the early experimental balloon sondes. One early but unsuccessful type was made of cork so that it would float if it should happen to land in water. Another was made of sheets of mica in a framework of thin metal; this package had the advantage of being transparent. However, it was later determined that it was unnecessary for the whole case to be transparent; in the present box, instruments are seen and adjusted through a small sliding window.

Weight, economy and protection are the factors currently considered most important for a radiosonde box.

Since the box is to be carried aloft by a balloon, light weight is a great advantage. The complete set weighs less than two pounds. The instruments are very small and the radiotransmitter is one of the most minute sending stations in existence. It is also desirable that the box be as light as possible without sacrificing strength. The fibreboard box, coated with aluminum foil or cellulose acetate, now universally used, is acceptable on that score and is said to be very satisfactory from other standpoints.

Since the Weather Bureau alone releases approximately 60,000 radiosonde sets a year, in addition to the thousands used by the Army and Navy, cost and adaptability to mass production are factors to be considered and the fibreboard box is regarded as superior on these points.

In manufacture by box companies, procedure is as follows: After a "Notice to Finders" has been printed on the acetate-coated paper or foil with a special ink which will not scratch or rub off, the surface sheet is laminated to the fibreboard, which is then cut and creased. Still in flat form, the box is supplied to the radiosonde manufacturer, who folds it into box shape, staples it and assembles the equipment in the box, where rigid fibreboard partitions keep the various instruments in place.

Since thousands of radiosondes, costing approximately \$17 apiece, are released each month, it is well worth while to salvage and re-use as many as possible. A "Notice to Finders" printed on each box requests that the flaps be tied down and the sets mailed back to the Weather Bureau. In well-populated areas, a 90% re-

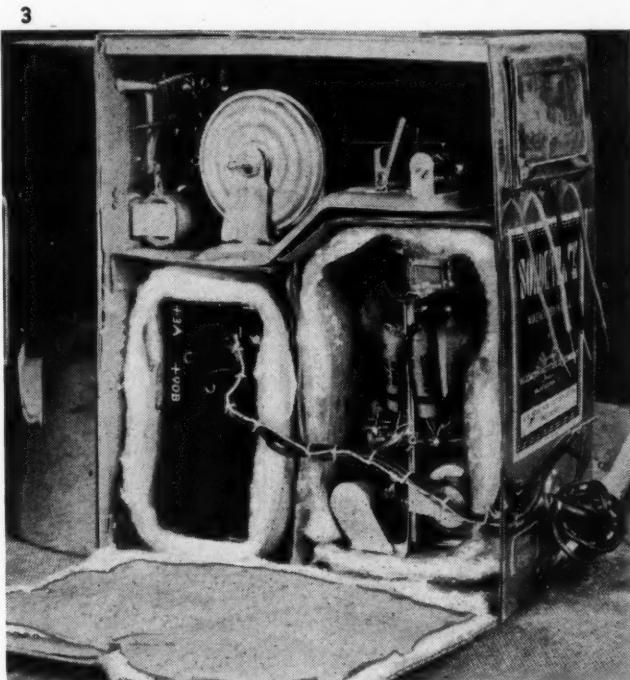
turn is not uncommon, even since rewards have been discontinued.

The high re-use rate for such a delicate instrument is a tribute to the strength and durability of the fibreboard radiosonde box. Not only does it hold together and protect the equipment from physical damage during the shock of a rough landing, but it also shelters the instruments from adverse weather conditions for a period of many hours or days until found. The cellulose acetate coating has waterproofing qualities which keep the box from disintegrating though exposed to the rains and snows of many seasons. The box is almost always found in good enough condition to serve as a mailing container for return of the radiosonde. A serial number stamped on each box with a non-soluble carbolic acid-base ink indicates date of release. Occasionally one is found and returned as long as three years after the release date.

It is a further tribute to the design and durability of the radiosonde packages that inspectors at Weather Bureau stations find many of the boxes themselves in satisfactory condition for a second, third or even fourth flight into the stratosphere.

CREDITS: Corrugated fibreboard by Maryland Container Co., Baltimore. Cellulose acetate-coated paper, "Duro Glo," Hammermill Paper Co., Erie, Pa. Boxes fabricated by Columbia Paper Box Co., Washington, D. C. Radiosonde sets assembled, boxed and packed by Washington Institute of Technology, College Park, Md.; General Electric Co., Schenectady, N. Y.; Kollsman Instrument Division of Square D Co., Elmhurst, N. Y.; and Julien P. Friez Sons Division of Bendix Aviation Corp., Baltimore. Staples by Bostitch, Inc., E. Greenwich, R. I. Plastic-lined shipping bags by Shellmar Products Co., Mt. Vernon, O. Silica gel by Davison Chemical Corp., Baltimore.

3—Compact assembly of valuable instruments inside the partitioned box. The sliding panel on the right hand side is for observation and for checking the instruments.



Versatile, modern labels

... for a varied line of chemical products

Distinctive new labels have been adopted for containers carrying the products of a large chemical concern in New York. Modern in design, they provide a family likeness for products distributed to two different industries which the company mainly serves.

Several unusual problems were encountered in developing the new label, and the methods by which they have been handled make an interesting case history.

The company's products are always sold in large quantities. Large metal drums and laminated kraft bags are used for packaging them. Yet the distribution of samples is an important part of the company's activities. Samples in small metal-capped glass jars and fibre cans are sent out regularly to all customers for their experimental laboratories, accompanied by company literature. The label had to be designed to be applicable to the large containers and, at the same time, in such a way that sample jars and cans on laboratory shelves would present a pleasing appearance.

While some chemicals are manufactured by the company at its own factory, others are supplied by firms for which it acts as a distributor. Both the distributor's name and the manufacturer's name appear on the labels. Consideration had to be given to the prominence with which each name should be displayed, the positioning of each and the relationship in type face between the two.

1—Old and new labels applied to sample jars of an industrial chemical product. Equally effective on bulk containers, the new label achieves distinction and quick identity of company name and product through the addition of color and the re-arrangement of typography.



There are approximately 60 different labels for just one of the several industries which the firm serves. Well known is the wide range in length of the names of chemical products. Allowance had to be made for sufficient flexibility of design to permit the display of either a long or a short name without conveying the appearance of either overcrowded or insufficient lettering.

From a design standpoint, the problem was primarily one of selection and arrangement of type. A New York designer noted for his work on fine books and other fine printed matter was chosen for the job.

Of the 60 different chemicals for one industry, many are supplied in the form of water suspensions, as well as in their regular forms. A plan was devised for differentiating between types without the necessity for duplicating the labels. In addition to its trademarked products, the company distributes water suspensions which are numbered rather than named. A single label for the numbered suspensions, adaptable to any of these products, was developed.

Then, labels for the company's several lines had to differ but yet present a likeness that would make the materials for the various industries instantly recognizable as its products.

The desire to have its products easily distinguishable from those of its competitors and identified as a family prompted the company's design change. The old labels were purely utilitarian. They carried the trade name of the chemical and other essential information. At the bottom appeared the company name and address, flanked by the firm's trademark. All printing was in black on a white background. The newly designed label, through a refinement of lettering and the addition of another color, provides easy identification and yet maintains the appropriate appearance of dignity.

The shortest trade name in the line was merely one letter and two figures. The longest ones had as many as 15 letters. The necessary flexibility was provided by a color division of the label.

A perpendicular bright blue panel on the left side covers about one-third of the label. The white background of the remaining two-thirds furnishes enough space for printing either the long or the short trade names in a manner that makes them outstanding and clearly legible. Airport bold oblique condensed type, printed in black with an upward slant, is used for the



2—Labels for bulk and sample containers. White expanse gives flexibility to accommodate trade name requiring one or two lines. Only word "dispersion" is printed on label for numbered dispersion chemicals; number is hand-stamped at time of use. Vertical strip at right to be attached to labels for named products supplied in dispersion form. 3—Use of slanted blue and white border distinguishes line of chemicals which are meant for use in another field and yet the labels maintain family identity. Large label is for metal drums, narrow one for sample paper cartons, small label is applied to shipping carton.

trade name. In instances where the name is long, two lines are used, to avoid the necessity of having to turn the jar. Every trade name, no matter how long, can be read at one glance. Because of the large white expanse the double line does not seem overcrowded.

In the upper left corner of the white block is the firm's trademark, redesigned to present a more clean-cut look. The new design conveys the general appearance of the previously used trademark. Other copy in the white block is a description of the chemical contents of the package in black lettering. Patent and license information, where necessary, is printed in small blue letters.

A simple line of small black dots emphasizes the separation between the blue and white blocks. With product information in the white block, the smaller blue one is used to carry both the concern's name, and, where the product is supplied from another plant, the outside manufacturer's name. The name of the outside manufacturer always appears on the label. Thus, indirectly, a sales promotion medium is provided for the manufacturers, among whom are many of the best known companies in the country.

A simplified replica of the trademark design appears again in white on the upper left corner of the blue portion of the label. The company name and address are displayed in large white letters at the top, and the name of the outside manufacturer is shown at the bottom in smaller black type. Centered in the blue portion of the label is the non-warranty information.

For the trademarked items supplied as water suspensions, a separate narrow strip-label is provided which is applied to the right of the regular label. A white border on the left fits the white border of the label proper; a black border on the right immediately distinguishes it as a suspension product. Use of the

supplemental strip eliminates the necessity for duplicate labels, and cuts down on inventories and printing costs.

Only the identification for water suspension is printed in the white portion of those labels which are numbered rather than named. The number is hand-stamped on the label at the time of use. In a red panel to the right of these labels, attention is called to the fact that the product must be kept from freezing.

Labels for other industries differ from the company's main line in that they do not carry the blue color block. Printed in an identical manner, the white label has on all four sides a blue-and-white stripe border printed in an upward slant to match the slant of the trade name. The stripe border provides immediate distinction between the two, yet maintains the family similarity.

During the war years the firm introduced several new chemical products. New ones are being added from time to time to keep pace with the growth of the industries served, and the new label will unquestionably be adaptable to any of the new chemical products.

The redesigned label placed on sample containers presents a clean appearance so desirable for research laboratory shelves. At the same time, it is strong enough in appearance to be striking when used on the large 50-gallon metal drums.

At the time the new labels were adopted, similarly designed shipping-carton stickers and post-office mailing labels were adopted. The booklets distributed by the company from time to time as an advertising medium also have been changed in format to carry out the design created for the company's containers.

CREDITS: Labels designed by Ernst Reichl, New York; printed by Bryant Press, Inc., New York.



2



3

130

DISPLAY GALLERY



4



1 The Vick Chemical Co. starts its fall promotion of Sofskin Creme with this new counter unit which acts as a tester as well as a self-selling display. The main portion of the unit contains an assortment of sizes arranged in steps for better visibility. A die-cut flap drops down in the front of the display to hold an opened jar of the creme plus a jar of paddles. Display made by Brooks & Porter, Inc., New York.

2 The Tin Woodman of Wizard of Oz fame is busy making OZ ice cream in Bloomingdale's window in New York City. Of stainless steel, the Woodman stands nearly five feet tall and, when the motor is turned on, he rotates the egg-beater, his arms move and his tongue licks his chops while his eyes roll with delight. At the present time Homix Products, Inc., has only one woodman who will be shipped to key points in the country, but as soon as sugar becomes more available and OZ gets into full production, the company plans to build duplicates, so successful has this promotion proved to be. Display, Ted Tinker, New York.

3 Dorset Foods, Ltd. of Long Island City has packeted consommé madrilène mix in small envelopes of a laminated foil-acetate combination—each envelope containing two portions. An easy-to-set-up display unit, designed to show six cartons at a time, each carton holding six envelopes, makes an eye-catching piece for counter or shelf. Laminated material, The Dobeckmun Co., Cleveland, Ohio. Display, Gruber Display Co., New York City. Folding carton, Acme Folding Box Co. Inc., New York.

4 Proceeding on the basis that by promoting the skill of the service man in repairing radios more tubes can be sold, the National Union Radio Corp. uses this theme in a new and colorful window display. Tapes running from the radio in the centerpiece carry the eye to side cards emphasizing each NU product. Display, Hussey-Woodward, Inc., New York City.

5 Stewart Products, Inc., New York City, has adopted this new counter unit to display its E-Z-Lift cap lifters. The three-color folding carton opens into a display by tucking the die-cut cover behind the last row of cartons. A point of unusual interest is the photo of a hand and jar connected by

(Page 131)

cut-outs which allow the retailer to insert an actual lifter in the display. Design, Leonard Koppel, New York. Display, General Carton Corp., Brooklyn, N. Y.

6 One dozen Gardner tobacco pouches are packed in this simple dark red set-up box for shipment but it also serves as a display by using the small card enclosed in each package. The card, done in red and black, slips down behind the pouches. Copy stresses the fact that the double vinyl material from which the pouches are made are heat-sealed instead of sewed for extra strength. Box, Metropolitan Paper Box Co., New York. Display card, Aladdin Business Service, New York.

7 Yale & Towne Manufacturing Co. emphasizes the ease with which its Yale "One Arm" springlatch can be opened in these latest counter and window units. Actual locks are attached to the displays for demonstration purposes. At the same time, other types of Yale locks are promoted in the area around the center spot. Display, Palmer Associates, New York.



PRE-PACKAGING FORUM

... a discussion pro and con

A valuable cross section of opinion on the future of pre-packaging in the produce industry was provided by a forum on the subject held during the recent annual convention in Chicago of the International Apple Assn.

The program was unusual in that it brought together on the same platform three university men who are recognized as among the nation's outstanding authorities on pre-packaging, although each has a different approach to the problem in experiments and research currently under way. The three professors were M. P. Rasmussen, of Cornell, co-author of the two articles on "Produce Pre-Packaging" in the July and August issues of MODERN PACKAGING; Charles W. Hauck, of Ohio State University, who is connected with the A & P Columbus Experiment, and K. I. Fawcett, of Purdue.

Represented in the informal panel discussion also were representatives of every segment of the produce industry—growers, shippers, jobbers, wholesalers, repackers and retailers. Chairman of the forum was Noel Bakke, of Seattle, Wash.

While the convention was concerned primarily with apples, the discussion necessarily dealt with fundamentals of pre-packaging, applicable to every type of fruit and vegetable.

Following is a digest of the more significant portions of the discussion:

M. P. RASMUSSEN, Cornell

Early this spring, I sent questionnaires to each of the 60 or 65 growers and shippers throughout the United States who were reported to have had any experience with the handling of pre-packaged apples during the five-year period from 1940 through 1944. The replies showed that a very large number of them had thought a good deal about pre-packaging, a dozen or so had tried it, and a very substantial number had discarded it because they found it uneconomical.

You will find a report of the information obtained in the two tables which have been distributed (Tables I and II).

Table I shows that of the half-million bushels of apples handled by those reporting, from 2% to 8% had been sold annually in consumer packages—averaging about 53,000 bushels a year. I think you will agree that this is not a large showing. Most of the reports were from Eastern territories. Western shippers indicated that a substantial number of apples had been shipped in 5-lb. bags and in what was called "family boxes."

I find a tremendous interest in a consumer package for apples, but there was not a single shipper or grower who felt that the proper package had been developed. The one encouraging feature of this survey is that a great many flatly stated they intended to do a great deal of work in trying out a large number of different kinds of containers.

I doubt that anyone in the United States has had enough experience to give an unqualified yes or no answer to such questions as: Will pre-packaging pay? Will it maintain or increase sales under all circumstances? What fruits and vegetables can and should be pre-packaged? Where should they be pre-packaged?

A couple months ago one of my colleagues, Prof. Platenius, and I made a survey of pre-packaging in the northeast. Since our report on that survey* no evidence has come to light to make us change the conclusions we reached.

In my opinion, pre-packaging of fruits and vegetables is merely an effort on the part of the fresh fruit and vegetable industry to catch up with the dry groceries, where pre-packaging has been practiced for years. It is a trend no one can stop. How fast it will develop is another matter.

One of the difficulties in pre-packaging has been that very little nearby produce has been processed by commercial packagers, so far as I can find out. A number of factors enter into this situation, which constitutes one of pre-packaging's serious problems.

I am convinced that no pre-packer can stay in the game unless he can operate the year around, and he must handle both distant shipping and locally produced products.

Practically without exception, those with whom I have discussed this matter agree that the right kind of wrapping material and packaging have not been de-

* See "Produce Pre-packaging in New York and New England," MODERN PACKAGING, July 1946, pp. 98-104; August 1946, pp. 128-134.

TABLE I.—TOTAL VOLUME OF APPLES SOLD YEARLY AND PROPORTION SHIPPED IN CONSUMER PACKAGES, 7 GROWER-SHIPPERS, EASTERN U. S., 1940-1944 SEASONS

Year	Volume sold		Total sold in consumer packages
	Total	In consumer packages	
1940	225,883	17,648	7.8
1941	479,938	23,669	4.9
1942	532,495	28,510	5.4
1943	507,060	12,303	2.4
1944	614,848	52,616	8.6

veloped; that we have not designed an economical enough refrigerator case.

My general conclusion is that we should be careful to restrain ourselves. There seems to be a great lack of know-how in this business, and we certainly need more facts.

CHARLES W. HAUCK, *Ohio State*

I shall attempt to describe briefly the joint research project known as the Columbus Pre-packaging Experiment*, conducted at Ohio State University under the sponsorship of the Ohio Agricultural Experiment Station and collaborated in by the A & P. Although the thing has had a lot of publicity, too much, I fear, we think we have just scratched the surface. We are encouraged, however, and believe that pre-packaging is moving in a hopeful direction.

We set up a system, for record purposes, whereby we constantly compare results in ten Columbus stores converted to pre-packaging and self-service, with refrigeration, as against ten comparable stores outside Columbus operated in the usual manner.

In a comparable period, we found that sales of produce in those stores handling goods in the orthodox manner increased 11.4% as against 19.02% in the ten Columbus stores.

Until recently, returns in Columbus were a little on the red side, but now A & P is beginning to make money. Gains made by savings in waste, savings in labor at the produce department level and other economies were not

* See "Packaged Produce . . . The Columbus Experiment," MODERN PACKAGING, July 1945, pp. 89-95.

quite enough until very recently to compensate for all the added costs. Part of this comes from increased shelf-life.

Observation in the stores, supplemented by laboratory data, indicated that refrigeration alone lengthened shelf-life on some items, for instance, from two days to five, and that packaging alone lengthened it about the same; but packaging and refrigeration—refrigeration at the retail store after arrival—raised shelf life to 15 and 18 days.

Pre-packaging offers opportunity for sellers to inspire even greater confidence among their patrons by satisfying their needs with a dependable service. It permits successful extension of brand identification to a line of merchandise which hitherto lost its identity as soon as it was received and unpacked for display by the retailer.

Although there are various opinions about the wisdom of the practice, we have undertaken to exact no premium for pre-packaged goods. If a stalk of celery in bulk retails for a quarter, that same stalk of celery trimmed, pre-cooled and packaged in a paperboard tray and overwrapped in cellophane still sells for 25 cents at retail.

May I add this further comment: We have made some experimental tests and find that consumers will pay substantial premiums. We have charged a premium of 7 cents a dozen on corn and found consumers willing to pay it. Better corn and better service. The corn grower wants to know why that premium doesn't come back to him. We have the feeling that it automatically must come back to him. If a packer can do this job without any net increase in his cost, certainly

TABLE II.—TYPES OF CONSUMER PACKAGES USED FOR APPLES AND PROPORTION OF TOTAL CROP SOLD IN SUCH PACKAGES, 7 EASTERN GROWER-SHIPPIERS, 1940-1944 SEASONS

Grower-shipper	Average annual volume sold	Years shipped consumer packages	Proportion of total apple crop shipped in consumer packages	Description of consumer package used		Sizes of apples
				Bushels	Number	
					%	
"A"	20,000	1	100.0	5-lb. mesh bags		2 ¹ / ₄ " and up
"B"	5,933	3	4.1	Cartons holding 20 and 48 apples		2 ³ / ₄ " to 3"
"C"	268,750	4	0.3	16 cardboard trays shipped in corrugated cardboard container		2 ¹ / ₂ " 2 ³ / ₄ " 3"
"D"	3,080	5	1.4	Cardboard containers holding 24, 20 and 16 apples (5 ¹ / ₂ to 6 lbs.)		2 ¹ / ₂ " 2 ³ / ₄ " 3"
"E"	23,600	5	1.7	1st yr., 8 and 12 count packages Other years, 48 and 112 count packages		2 ³ / ₄ " to 3 ¹ / ₂ "
"F"	46,910	5	17.0	4-qt. corrugated baskets, wooden handles, 18 to 30 apples (5 ¹ / ₂ lbs.)		2 ¹ / ₄ " 2 ¹ / ₂ " 2 ³ / ₄ "
"G"	175,895	5	7.8	5-lb. open mesh bags		2 ¹ / ₄ " and up

the grower ultimately is bound to get a higher price for his produce.

 **K. I. FAWCETT, Purdue**

I believe that the vitamin content of pre-packaged fruits and vegetables is an angle that many of us have overlooked to date. Our chemistry department at Purdue expects to make vitamin tests, and they will be run on fresh fruits and vegetables that have been on store shelves for some time.

We are trying to find some means whereby we can place pre-packaged fruits and vegetables in stores for three or four days and have a quick turnover, without refrigeration. That doesn't mean we do not refrigerate the produce as it comes in. Right now we are packing corn that is maintained at 34 deg. F. until it is packaged. After that, there is no refrigeration, and to date we are getting very, very good results.

Another thing we are trying to determine is what people will buy wrapped and what they will not buy wrapped. For some reason in Indianapolis and in Lafayette last year we couldn't sell packaged carrots. Dr. Hauck has good luck with carrots. We have success with apples, which are going over very well.

We try to stick to the use of boxes, wherever possible. We have devised attractive boxes for everything we package, and we always strive for a bulge in the box. If the box hasn't a bulge, we put it there, because it makes the housewife feel she is getting her money's worth. Our preference for boxes, however, does not mean that we won't try anything else.

 **M. MINARDO,**
M. Minardo Fruit Co., Lafayette, Ind.

Last February we started working with Purdue University on pre-packaging. So far we are of the opinion that we can pre-pack without refrigeration. At present we are working with three local retailers on four different items. Limited quantities are delivered to these stores, in order that the products may be disposed of the day they are delivered. Time records show each evening how much merchandise was sold during the day, then shelves are refilled.

Only No. 1 merchandise has been used, and quality has been so good that acceptance has been remarkably good. Just last week the three retailers demanded greater quantities.

We deliver within a radius of 60 miles, and 60% of our retailers cannot afford electric refrigeration. Sixty percent of our retailers handle 25% of the commodities we handle.

We have pre-packaged a little more than we have given the three retailers and displayed it in warehouses. Customers who see the merchandise, and our salesmen, are asking why we don't pre-package more, but we are not at the production stage yet. I think acceptance is

going to be wonderful and will increase at least 50% when we get a wrap that will be adequate without refrigeration.

 **HERSCHEL H. JONES,**
produce receiver, New York City

The important thing is to develop new methods of merchandising and handling fruits so that the consumer will get better quality and fresher fruit, in crisp condition and free from the bruising and deterioration which takes place during wholesale and retail handling. I think any impression that a package in itself is going to perform miracles and enable higher-priced sales for ordinary quality apples is going to lead to disillusionment.

 **MAX R. SMITH, Millburg Growers' Exchange, Benton Harbor, Mich.**

My first attempt at consumer-type packaging dates back about ten years. We tried cartons of the small 12-apple size and a few bags. Although it worked out fairly successfully, our difficulty was that the apples had to be sized right down to the very finest point in order to make an attractive pack. We could jumble the apples in bags, but the bags were not a very good carrying medium. We gave up the project because, although we got a premium on selling the fruit, it cost a lot more for handling. I would like to point out that on all pre-packaging there is double handling. That must be avoided, and we are working toward that.

As to peaches, we have worked with the Michigan State College for three years, in conjunction with the A & P. Our work has been confined mostly to a half-bushel pack, and I think we are now out of the experimental stage. The A & P has asked for substantial quantities so that a real test of consumer reaction may be obtained.

It seems to me that pre-packaging is definitely coming, but we must develop a technique for volume packaging if the producer is to be attracted.

 **BEN SPECTOR,**
National Marketing Service, Phila.

Quite a bit of fruit and vegetables is being pre-packaged and sold in our stores, but volume is almost negligible due to the prohibitive cost. Pre-packaging of onions and similar commodities will continue, and we will handle a certain percentage of pre-packaged merchandise, but because of present economic conditions we are not going into it strongly now. When we get back to normalcy, the housewife will not be very susceptible to spending a lot of money for packaging; she will want merchandise, as in former times. We cannot ask the housewife to pay for labor and packaging. Pre-packaging is very good and we appreciate it as a labor-saving

way of selling fruit and produce, but it is a question of cost.

WALTER REICH,
A. Reich & Sons, Kansas City

We think it takes a better merchant at the retail level to handle packaged merchandise than it does to handle bulk merchandise. We have seen the grocer selling pre-packaged merchandise as if it were hardware.

We all must have one thought in common—think retail. When we, as an industry, realize that and do our planning and processing accordingly, we will arrive at something that will be constructive and get the job done.

JOHN P. GRADY,
Chase Bag Co., Chicago

We don't think a bag is the ideal container for apples. An ideal apple container ought to be transparent, rigid, and allow for the passage of air from the outside into the fruit.

Before the war we did some experimenting with apple bags, and in nearly every instance we found that once the apples became bruised, the package would not sell. There is a place for the apple bag as a merchandising tool for packaging in the store, not at the shipping point. If pre-packaged apples are to be sold in volume, an inexpensive package must be developed.

R. S. GRANT,
Food Machinery Corp., Dunedin, Fla.

In Booth No. 4 on the floor below, I have an apple bagger and peach bagger* which may also be used for onions and which is now in operation at the A & P in Columbus. It is designed to be put in the preparation bin and is lined up for consumer packaging. It is by no means a point-of-origination bagger, but it does lend itself to putting products in packages by count and at an average weight of 3 lbs. 4 oz. In Columbus both peaches and apples are packaged according to size by changing the stop regulation.

My optimism concerning pre-packaging is based upon the distinct consumer reaction to it. Whether the public will respond to it as the economic cycles goes down, I don't know.

On the question of where consumer packaging should be done, I believe it is now a warehouse operation for most products. But, in Ruskin, Florida, we have set up the Ruskin Vegetable Co-Op, a state-wide project in which we are participating with the University of Florida, film and container manufacturers, packaging people, growers and others. Tests are going to be made on different products, and we are going to find out how far pre-packaged merchandise may be shipped and yet arrive in good condition.

* See "Produce Pre-packaging, 2. Protective Requirements and Practices in N. Y. and New England," MODERN PACKAGING, Aug. 1946, p. 132.

American trademarks appropriated abroad

The familiar-looking packages shown here contain razor blades made in Italy—not American cigarettes, as one might think at first glance. Brand names of leading American cigarettes, in packages of the same color and general design as the original cigarette packages, are being used by manufacturers of razor blades in Europe to promote the sale of their product.

This questionable practice was reported by J. P. Spang, Jr., president of the Gillette Safety Razor Co., on his return from a European business trip.

American cigarettes attained great popularity when the G. I.'s were in Europe during the war. Names such as Camel, Chesterfield and Lucky Strike became familiar and signified a much-sought-after American product of high quality. By adopting these well-known names and package designs to their product, the razor-blade manufacturers have based their sales appeal on the favorable impression of

American quality created in the minds of their customers during the war period.

It is interesting to note that the Italian manufacturers have attempted to convey to their customers the thought that the product itself is American. All copy on the Italian packages and on the blades is printed in English, and the face of the package tells the purchaser that the blades are made by a "Special Working American System."



Mass market gift sets . . . Pond's has eight

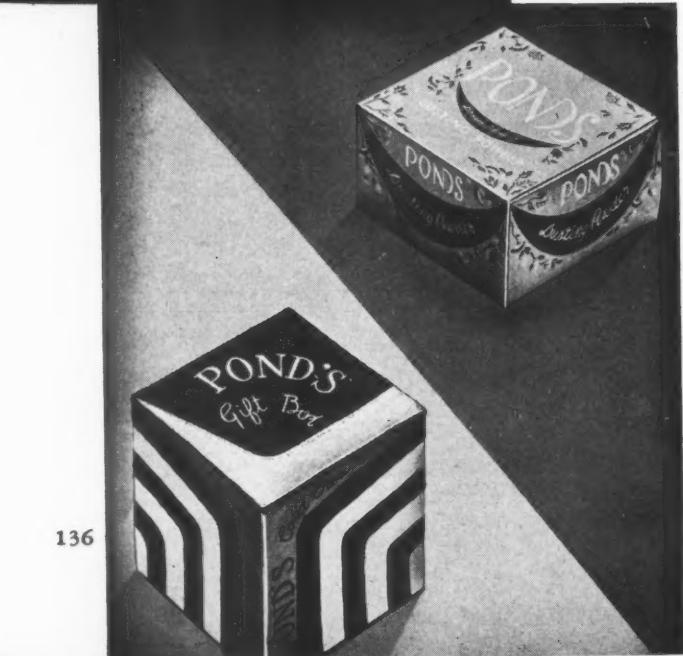


1



2

3



Dressing up popular-priced staple cosmetic lines in special gift sets for the holiday season has long been recognized as an excellent merchandising idea to win greater sales of items, not usually considered gift merchandise, during the Christmas season.

The Pond's Co. has long been a leader in this field, but such gift packaging was greatly curtailed during the war. The group planned for Christmas 1946, numbering eight altogether, is the largest ever brought out by the company.

What Pond's has done is interesting because of the company's many years' experience in the mass market field of cosmetics.

The gift sets are meant for two different types of outlets—the group at 35 cents to 59 cents for variety stores and those around and over a dollar for drug and department stores. One set in each group is aimed to please the increasingly important young market—the teen agers. "Date Kit" for 35 cents and "Let's Make-Up" for 89 cents not only contain the appropriate products for high school and college girls but are packaged with young appeal.

There is a markedly feminine note in nearly all the packages which use motifs of roses, stars, polka dots, tassels and ruffles in soft pastel shades. Pond's dusting powder, an item the company suggests as a stocking present, is dressed up in a folding carton designed after the company's Dreamflower motif. A departure from the other design themes is the striking box of fuchsia and white stripes on silver, which dresses up a large economy size jar of cold cream in an elegant manner.

Pond's is also outstanding for the wide use it makes of specially constructed folding cartons as gift containers. A particularly unusual one is that used for "Beauty Bazaar." The innovation is the use of a printed flap which completely folds under the inside surface of the lid to give a colorful background when the package is set up for display. Cartons are equipped with die-cut platforms that hold each separate piece of merchandise in the sets.

CREDIT: *Beauty Bazaar* carton by Ohio Boxboard Co., Rittman, Ohio.

1—"Let's Make-Up" and the "Beauty Chest" are set-up boxes with hinged lids. Design is gay and feminine with motifs of flowers, polka dots, tassels and ruffles. 2—Pond's has made outstanding use of folding cartons as gift containers. An innovation is a printed flap which folds under inside lid to give colorful background when package is set up for display. 3—Dusting powder is dressed up in carton with Dreamflower motif. Economy jar of cold cream becomes a gift item in a fuchsia and silver striped carton of modern design.



Original

F. N. Burt is so well established as the automatic producer of small setup boxes in larger quantities that some other important aspects of our service may be overlooked.

For instance, F. N. Burt has long been a leader—an originator of packaging progress. Constantly, new items involving interesting combinations of plastics and paper and board come from our design and production departments. A number of interesting dispensers for powders which combine plastics and board or plastics and metal have been produced recently. You may have seen some at the Packaging Exposition. Various types of closures for our finer boxes have also been developed, combining plastics and board.

We are primarily packaging engineers. We not only create new packages but we have created, designed and built the very machines with which they are made.

These machines are hard at work in our plant producing packages for our many customers.

F. N. BURT COMPANY, INC.

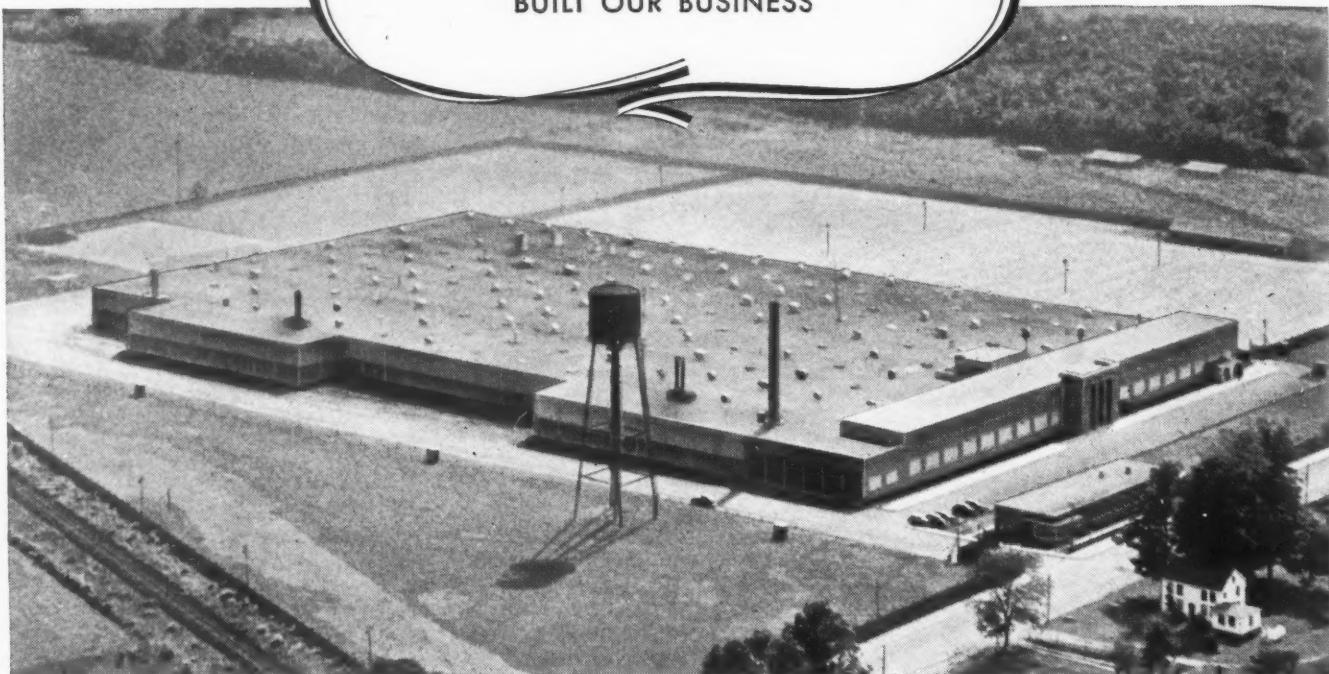
500-540 Seneca Street, Buffalo, N. Y.

New York City • Philadelphia • Boston • St. Louis • Atlanta • Chicago • Cleveland
Cincinnati • Los Angeles • New Orleans • Memphis • Minneapolis • Kansas City
San Francisco, California • Newark, New Jersey

CANADIAN DIVISION:

Dominion Paper Box Company Ltd., 469-483 King St. W., Toronto 2, Canada

SOLVING OUR CUSTOMERS' PROBLEMS
BUILT OUR BUSINESS



New Plant of the Package Machinery Company

361,000 square feet of floor space . . . 40 acres of land

This new plant at East Longmeadow, just outside the city of Springfield, when in full operation, will enable us to greatly increase our output of wrapping machines.

Production will continue in our present plant while the machines and equipment are being installed in the new plant.

Our offices will be located on the first floor of the front section. The Engineering Department will occupy the entire upper floor.

With manufacturing operations all on one vast floor, efficiency will be greatly increased, and working conditions will be more pleasant for our craftsmen. All of which will result in still better service for our customers.

We deeply appreciate the fact that our steady growth over the past 33 years is due to the confidence placed in us by the packaging industry. And you can be sure that we will continue to do everything possible to retain that goodwill by endeavoring to make our services of increasing value.

PACKAGE MACHINERY COMPANY, Springfield 7, Massachusetts

30 Church St., New York 7 • 111 W. Washington St., Chicago 2
101 W. Prospect Ave., Cleveland 15 • 849 Marietta St., N.W., Atlanta 3 • 443 S. San Pedro St., Los Angeles 13
320 Market St., San Francisco 11 • 18 Dickens Ave., Toronto 8

TECHNICAL SECTION

Charles A. Southwick Jr. • Technical Editor

Films for produce

... their physical characteristics and requirements*

by Hans Platenius†

Fresh fruits and vegetables differ from processed foods in one important respect: they remain living organisms until they are cooked or appear on the dinner table. Being living matter they undergo the normal life processes; they continue to respire (breathe), they lose water in transpiration and they are subject to slow chemical changes. All of these processes contribute to the gradual deterioration of the product.

Any handling procedure, including prepackaging, should aim to retard these life processes without, however, stopping them altogether. Once the plant cells have been killed the product becomes unfit for food within a few hours unless it is frozen, dried, or kept under sterilized conditions.

It is for this reason that the requirements of transparent films for prepackaging differ somewhat from those used for wrapping frozen foods and other non-living food products. Transparency and low permeability to water vapor are desirable characteristics in either case. In addition, films for prepackaging fruits and vegetables must be permeable to oxygen and carbon dioxide sufficiently to allow enough respiration to keep the plant cells alive.

Ever since the prepackaging of highly perishable fruits and vegetables got under way it was suspected that some of the films used for wrapping are not sufficiently permeable to oxygen and carbon dioxide to prevent spoilage of the product due to smothering. A study was undertaken, therefore, to measure the permeability of transparent films to oxygen and to relate these data to the requirements of various vegetables for oxygen.

Course of respiration in airtight containers

Before reporting the results of this study it seems appropriate to outline briefly what happens if a highly perishable commodity—asparagus, for instance—is packaged in an airtight container.

During the first few hours after packaging respiration proceeds at a normal rate. From one-fourth to one-half of the volume of the container consists of air which sup-

plies the oxygen needed for respiration. During this period carbohydrates, primarily sugars, are oxidized to carbon dioxide and water. Expressed in terms of a simple chemical equation the process is:



This reaction does not involve any change in the total volume of gases since carbon dioxide is produced at practically the same rate as the oxygen is utilized. Depending on the temperature which controls the rate of respiration the oxygen supply becomes exhausted more or less rapidly. As oxygen is depleted, the rate of respiration also declines. By the time the oxygen concentration has dropped from 21% to 3% respiration is reduced to about one-half of its original rate. Up to this point the effect of restricted gas exchange has been definitely beneficial because losses of sugar and ascorbic acid (vitamin C) were reduced to about the same extent. Unfortunately, a sudden change in the course of respiration occurs at this point. As the last traces of oxygen are being utilized there occurs a shift from aerobic to anaerobic respiration. With no free oxygen entering the reaction, carbohydrates are being oxidized to alcohol and carbon dioxide. The chemical equation becomes:



At the same time the rate of respiration increases sharply but does not reach the same level as in the pres-

One of the biggest needs in the most rapidly expanding phase of packaging—the prepackaging of fresh fruits and vegetables—has been for accurate, scientific analysis of the protective values of various wrapping films for this specialized type of product. This original work by Dr. Platenius, one of the outstanding authorities, should be the start of a growing bibliography on the subject.

* Paper No. 282, Department of Vegetable Crops, Cornell University, Ithaca, N. Y.

† Associate Professor of Vegetable Crops, Cornell University.

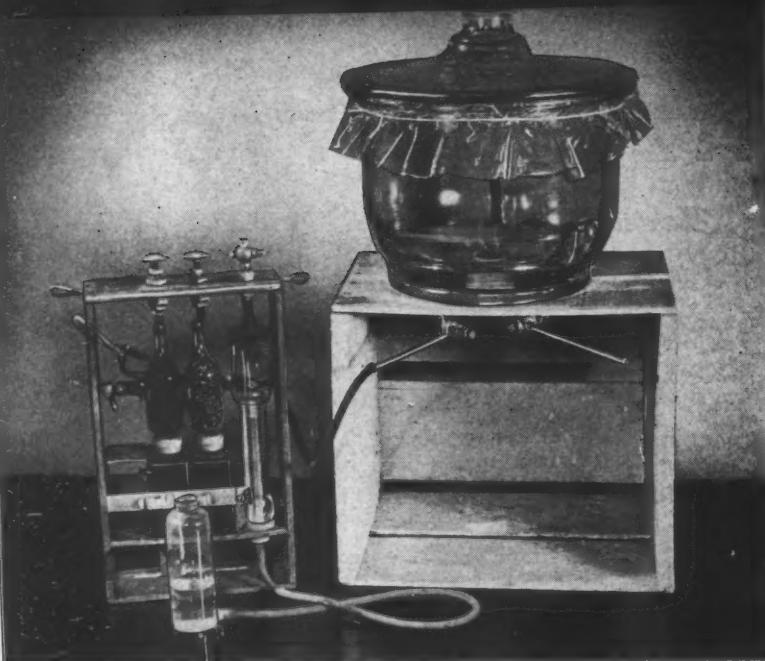


Illustration above shows the apparatus used for determining the permeability of transparent films to oxygen.

ence of a normal supply of oxygen. Since no more free oxygen can be utilized but carbon dioxide continues to be liberated the total volume of gas within the container begins to rise. The package swells gradually and, if there is no leakage, it will burst eventually. More important is the accumulation of alcohol during anaerobic fermentation. Even small quantities of alcohol impart a highly undesirable odor and taste to the product, they kill the plant cells, cause decay and within a few hours the product becomes unsalable.

Requirements for O_2 permeability of transparent films

The ideal type of film would be one that permits the diffusion of a quantity of oxygen just enough to maintain an oxygen concentration of from 3 to 5% within the package. This statement is based on the results of a large number of experiments carried out by the writer (1)* and by others. It is altogether feasible that transparent films could be manufactured which have the desired degree of permeability to oxygen. One should remember, however, that the requirements for oxygen vary greatly with temperature, the kind of produce packaged, the size of the package and several other factors. A film of different specifications would have to be used, therefore, for each set of conditions. This being impractical, two alternatives remain: to choose a film of sufficiently high permeability to satisfy the need for oxygen under all conditions or to provide necessary ventilation by some other means.

How well different types of transparent films satisfy the need for adequate oxygen supply can easily be calculated provided the film characteristics and the need for oxygen requirements are known.

Permeability characteristics of films

Permeability characteristics of a number of different transparent films measured at isostatic pressure have

* Figures in parentheses refer to "References" appended.

recently been published by Davis (2). Prior to the publication of these data the writer undertook to measure the permeability of some films to oxygen using a somewhat different method.

A sheet of the test film was stretched over the rim of a large desiccator of 8-liter capacity and sealed gastight with vaseline. A large hole, 4 cm. in diameter, in the lid of the desiccator served to maintain an atmosphere of normal oxygen content above the test film. Through a hole in the bottom of the desiccator two glass tubes with stopcocks were inserted. Ten ml. of water in the desiccator kept the atmosphere saturated with water vapor thus providing the same conditions that exist within a package of vegetables. The chamber was then flushed with nitrogen from a cylinder until all oxygen was replaced by nitrogen which was ascertained by gas analysis of a small sample of the air within the chamber. The desiccator was kept in a room in which temperature and humidity could be controlled within a narrow range. At the end of the test period which lasted from 3 to 7 days depending on the permeability of the test film, a second gas sample was taken to determine the quantity of oxygen which had diffused through the test film (Fig. 1). The results were recalculated and expressed as ml. of oxygen diffusing per day through a sheet of film one meter square when the partial pressure of oxygen across the film is 760 mm. of mercury. The results of these measurements are given in Table I. With one exception, these measurements gave permeability values for oxygen considerably higher than those reported by Davis (2). This is not surprising in view of the fact that entirely different procedures were employed under different sets of conditions. At any rate, the two sets of data give results of the same order of magnitude and they lead to the same general conclusions.

Oxygen requirements of 10 different vegetables have been determined earlier by the writer (3) in connection with studies on respiration of vegetables stored at various temperatures. It merely remained to calculate from the available data how well the requirements for oxygen are satisfied if vegetables are prepackaged in conventional sizes. Arbitrarily it was assumed that the total surface of film exposed is 570 cm^2 per one pound of vegetable. Obviously, in larger-sized packages the relative area of film per given weight would be correspondingly smaller. An important part of these calculations

TABLE I. OXYGEN PERMEABILITY OF TRANSPARENT FILMS

Type of Film	Thickness—In.	Ml. O_2 /sq. meter/24 hrs.*
Cellophane 300 MSAT	0.0009	240
Pliofilm 140 P5F	0.0014	510
Cellulose Acetate A	0.0012	3,000
Cellulose Acetate B	0.0009	3,400
Cellophane PT	0.0008	6,300
Ethyl Cellulose	0.0012	16,000

* Measurements were made under the following conditions: Temperature = 75 deg. F., R.H. 100% and 60%, respectively, on two sides of test film. Difference in partial pressure of O_2 across test film = $1\frac{1}{2}$ atmospheres. The data were recalculated to a partial pressure difference of oxygen of 760 mm. Hg. Volume of O_2 was corrected to standard conditions.

TABLE II. REQUIREMENTS FOR OXYGEN OF DIFFERENT VEGETABLES AND REQUIRED OXYGEN PERMEABILITY OF TRANSPARENT FILMS USED FOR PREPACKAGING

Vegetable	Ml. O ₂ required per lb. per hour at 75° F.	Required O ₂ permeability of film expressed as ml. O ₂ /sq. meter/24 hours	
		(O ₂ gradient = 1 atm.)	50° F.
Asparagus	174	101,500	355,100
Peas in pods	99	72,200	202,100
Snap beans	81	47,200	165,300
Spinach	80	45,400	163,300
Peppers	20.5	13,100	41,800
Carrots	16.7	12,600	34,100
Head lettuce	11.1	8,100	22,700
Tomatoes	12.0	7,700	24,500
Cucumbers	11.2	8,500	22,900
Potatoes	3.0	2,000	6,100

* Data comparable to those given in Table I.

was a correction for the fact that under commercial conditions the gradient in partial pressure and therefore the diffusion rate of oxygen is about one-fifth of that maintained under conditions as specified in the test data. The results of these calculations are given in Table II.

Comparing the data of Tables I and II it is evident that only ethyl cellulose film has a permeability to oxygen high enough to maintain normal respiration of a few vegetables having a low respiration rate. Cellulose acetate could possibly be used for potatoes held at 50 deg. F. Moistureproof cellophane would have to be at least 1,000 times more permeable to oxygen if it were to be used safely as an airtight container for all kinds of vegetables. Actual tests have confirmed these conclusions. Whenever vegetables were prepackaged and seals made gastight the detrimental results of anaerobic respiration became apparent sooner or later. At a storage temperature of 50 deg. F. some vegetables could be kept for as long as 24 hrs.; others showed signs of fermentation within 12 hrs. after packaging.

Confirmation of the dependability of the data in Table II was obtained by a series of experiments. Vegetables of definite weight were put into the same kind of desiccator as was used for measuring oxygen permeability of films. The chamber was then sealed with moistureproof cellophane and gas analyses of the atmosphere within the chamber were made at certain intervals. It was found that the oxygen in the free space of the chamber became exhausted within two hours of the time calculated from the data in Table II.

No doubt, anaerobic respiration does not occur in commercial practice as frequently as might be expected from the data presented. This is due to several causes: A considerable quantity of oxygen is trapped within the film during prepackaging. How long this supply of oxygen lasts depends on several factors: the weight of produce per unit volume, the kind of produce and the temperature. Under refrigeration some kinds of produce may be provided with enough oxygen to last for more than a day. At room temperature rapidly respiring

vegetables exhaust the oxygen supply within a few hours. There are other circumstances which reduce the danger from anaerobic respiration under commercial conditions: The seams of bags are not always entirely gastight, some operators use staples for closing bags, which permits a considerable degree of gas leakage, and overwrapped packages usually have imperfect seals. Nevertheless, spoilage which could be traced to an insufficient oxygen supply has occurred often enough in commercial practice to warrant the recommendation that airtight seals be avoided.

Nothing has been said thus far about the effect of carbon dioxide which may accumulate within the package. The belief is widespread in the trade that damage in tightly sealed packages is the result of an accumulation of carbon dioxide, not the lack of oxygen. This belief is erroneous. Davis (2) has shown that transparent films used for prepackaging produce are far more permeable to carbon dioxide than to oxygen, so that the rate of carbon dioxide accumulation is somewhat less than the corresponding rate of oxygen depletion. Moreover, carbon dioxide concentrations up to 20% are not necessarily harmful. Depending on the type of produce involved the presence of carbon dioxide increases or decreases the rate of respiration and destruction of ascorbic acid (4). Carbon dioxide may have a definite beneficial effect by retarding the growth of destructive micro-organisms. It suffices to say that ordinarily the effect of carbon dioxide accumulation is far less important in prepackaging produce than the lack of sufficient oxygen.

Punching holes in the wrapper film or making imperfect seals systematically by using lap-seals to provide an adequate oxygen supply has been suggested and actually been carried out by some operators. The questions that remain to be answered are these: How much ventilation is needed and whether vent holes cause an excessive degree of moisture loss from the package?

The first question was investigated in two simple experiments. First, it seemed desirable to learn how much oxygen diffuses through a single small vent hole. For this purpose a procedure similar to the one for measuring diffusion rates through films was used. A film of moistureproof cellophane was stretched over a desic-

Close-up of the apparatus described herein for determining the rate of oxygen diffusion through vent holes.



cator. Previously a hole, 4 mm. in diameter, had been punched through the center of the sheet. The chamber was then flushed with nitrogen while the hole was temporarily closed with a strip of scotch tape (Fig. 2). After all oxygen had been replaced by nitrogen the tape was carefully removed and the chamber kept at a constant temperature for several hours. After a definite period of time the hole was closed again with tape and the quantity of oxygen that had passed through the hole was measured by taking a sample of the atmosphere within the chamber for analysis. Repeated tests showed that on the average 60 ml. of oxygen pass through an opening of that size. Fluctuations in temperature or in barometric pressure tend to increase the rate of diffusion. Comparing this value with the oxygen requirements of different vegetables as given in Table II, it appears that a single hole 4 mm. in diameter would be sufficient to provide enough oxygen needed for all but a few vegetables having an unusually high respiration rate.

Actual tests with bags were carried out next. In order to guard against the possibility of having the vent hole blocked by part of the vegetable two holes instead of one were punched into each bag. All of these tests showed that two small vent holes were sufficient to prevent anaerobic respiration in small packages under all conditions.

The question of whether vent holes cause excessive shrinkage and wilting was determined in another series of experiments. Because this question ties in closely with the whole problem of water relationships, details of this experiment will be discussed below. It suffices to state that the increase in moisture losses as a result of vent holes is negligible.

All these findings lead to the definite conclusion that the safest and simplest method of guarding against the detrimental results of anaerobic respiration is to punch small vent holes into the film or to provide some other means of ventilation of all tightly sealed packages containing fresh fruits and vegetables. Such vent holes have no appreciable effect on the rate of moisture losses from the package.

Requirements for water-vapor permeability of films

The permeability of transparent films to water vapor requires careful consideration. Under certain conditions produce may be subject to excessive wilting if wrapped in a film which has a high permeability to water vapor; a moistureproof film, on the other hand, may be objec-

The cups used to measure WVP of transparent films.

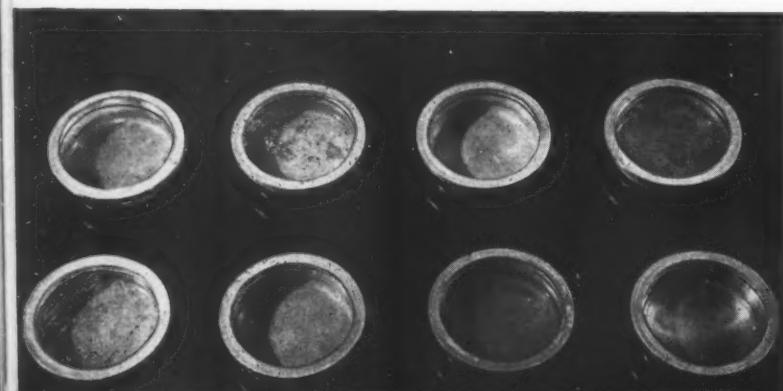


TABLE III. WVP OF DIFFERENT TRANSPARENT FILMS EXPRESSED AS PERCENTAGE PROTECTION AFFORDED AGAINST EVAPORATION FROM FREE SURFACE OF WATER

Type of Film	Thickness—In.	Per cent	Protection
		75°	50°
Cellophane 300 MSAT	0.0009	99.2	97.8
Pliofilm 140 P5F	0.0014	98.8	89.2
Cellulose Acetate B	0.0009	44.0	40.6
Cellulose Acetate A	0.0012	62.9	68.9
Cellophane PT	0.0008	21.4	21.5
Ethyl Cellulose	0.0012	65.9	65.2

tional because it causes condensation (fogging) on the inner surface of the film.

In order to evaluate the suitability of different films for prepackaging fruits and vegetables it is necessary to take into account the susceptibility to wilting of different products and the conditions under which they are to be kept. Differences in the rate of water losses of different fruits and vegetables depend primarily on two factors: the relative surface area exposed in relation to weight and the degree to which transpiration is inhibited by a waxy or corky layer on the epidermis. Leafy vegetables lose water two to three times as rapidly as root crops, also small specimens (snap beans, for instance) wilt more rapidly than large ones. The rate at which any one vegetable loses moisture is directly proportional to the difference in vapor pressure between that of the storage atmosphere and that of a saturated atmosphere at the temperature of the product itself. Although the actual rate of moisture loss varies greatly with different kinds of produce and with prevailing temperature and humidity conditions, the percentage water loss which causes wilting is fairly constant. A series of determinations made under different conditions showed that severe wilting occurs in almost all kinds of fruits and vegetables if weight losses exceed 10%.

It is evident from the foregoing discussion that it is difficult to state in absolute terms the requirements for WVP of films to be used for prepackaging produce. It is possible, however, to make broad recommendations provided the WVP of a specific film is known.

Many different methods have been used to determine the WVP of packaging materials. Southwick (5) and others have pointed out that it is necessary to make such measurements at temperature and humidity levels at which the films are to be used. To be sure, the absolute quantity of water vapor passing through a film of given area and thickness depends primarily on the difference in vapor pressure on the two sides of the film. It is known, however, that WVP of some films varies with temperature and humidity conditions independently of the gradient in vapor pressure across the membrane.

Measurements of WVP of several films commonly used for prepackaging were therefore made under conditions similar to those at which prepackaged produce is usually kept in a retail store. A temperature of 75 deg. F. and R.H. of 60% was used to simulate condi-

tions of an open display shelf; a temperature of 50 deg. F. and R.H. of 82% was assumed to resemble conditions inside a refrigerated showcase. The cup method was used to make these measurements (Fig. 3). The test film was mounted on the rim of a shallow aluminum cup partly filled with distilled water (Fig. 4). The film was held in place by an aluminum ring sealed airtight to the cup by means of hot paraffin. An open cup without test film served as control. Rates of WVP were calculated from the difference in the weight of the cups at the beginning and the end of three- or six-day periods. The results were expressed not in absolute terms but as percentage protection that the film provides against water losses. The weight loss of the open cup served in each case as the base line, indicating zero per cent protection. A film absolutely impermeable to water vapor would give 100% protection. To the writer it seems that this method of expressing data on WVP has distinct advantages, making it possible to evaluate the degree of moistureproofness of different films at a glance. The results of these measurements are summarized in Table III. In general, the films tested give slightly higher protection against water losses at 75 deg. than at 50 deg. F. Far more important is the wide range in WVP of different films tested under identical conditions. They vary from 21% for P.T. cellophane to 99% for M.S.A.T. cellophane at 75 deg. F.

The reader should be cautioned against an attempt to predict from these data to what extent shrinkage losses can be reduced by wrapping produce in a particular kind of transparent film. This cannot be done. Theoretically, one should expect that wrapping produce in films of cellulose acetate would reduce shrinkage to $\frac{1}{2}$ and wrapping in moistureproof cellophane to $\frac{1}{50}$ as compared with normal unwrapped shrinkage losses.

Weight records of bulk and prepackaged vegetables show that actually the advantage gained from prepackaging is much smaller and the results are inconsistent. When held for three days at a temperature of 75 deg. F., snap beans in bags of M.S.A.T. cellophane lost about 3% in weight; in cellulose acetate bags the shrinkage was 9% and in bulk it was 11%. Tests with many other vegetables showed a similar relationship. It should be pointed out that shrinkage losses of produce are caused almost entirely by the evaporation of water. This is due to the fact that fruits and vegetables contain from 80 to 95% water and that losses of dry matter due to respiration are insignificant by comparison.

There are several reasons for this discrepancy. First of all, water losses of fruits and vegetables in bulk or in a package are considerably smaller than those of an exposed surface of water. In a package of spinach, for instance, the leaves near the outside of the package protect those in the center against evaporation. A large pile of produce in a bin which leaves only the top exposed may actually show less shrinkage than a single package of the same product wrapped in a transparent film and kept under identical conditions. Moreover, it has been noticed that an appreciable degree of shrinkage occurs in prepackaged produce if cardboard boats

4



Cup, ring and sample film before they are assembled.

are used which have not been coated with paraffin or some other water-repellent material. The writer is convinced that reliable records on shrinkage losses can be obtained only in a retail store where produce is handled in commercial quantities. Studies of this kind are being started now and will be published at a later date. Observations made in retail stores where prepackaged produce is being sold seem to indicate that any film with a WVP rating of 50% or higher (based on rating system as given in Table III) provides sufficient protection against excessive wilting of all produce that is being kept in a refrigerated showcase. It seems desirable, however, to use transparent films which are definitely moistureproof for leafy vegetables and berries that are to be displayed on an open shelf.

In the first part of this article dealing with gas diffusion rates it was pointed out that some form of ventilation of packages is necessary if ill effects from anaerobic respiration are to be avoided. It was also pointed out that two vent holes per package, each $\frac{1}{8}$ in. in diameter, are sufficient to permit the passage of enough oxygen to maintain normal respiration.

Objections to any kind of ventilation of packages have been raised based on the assumption that any vent hole would allow enough water vapor to escape to offset or minimize the advantage gained from using moistureproof or semi-moistureproof films. An experiment was set up to determine as accurately as possible how much water vapor actually passes through the above mentioned vent holes.

About one pound each of several vegetables was packaged in moistureproof bags of transparent films. One package in each lot was sealed airtight, another one had two holes $\frac{1}{8}$ in. in diameter, the next one four holes, etc., and the last one in each series had 12 holes punched into the bag. The packages were held at 75 deg. F. and an R.H. of 60% for 2 to 3 days and the net shrinkage losses determined at the end of the storage period. As was to be expected the results were not at all consistent; sometimes a bag with (Continued on page 170)

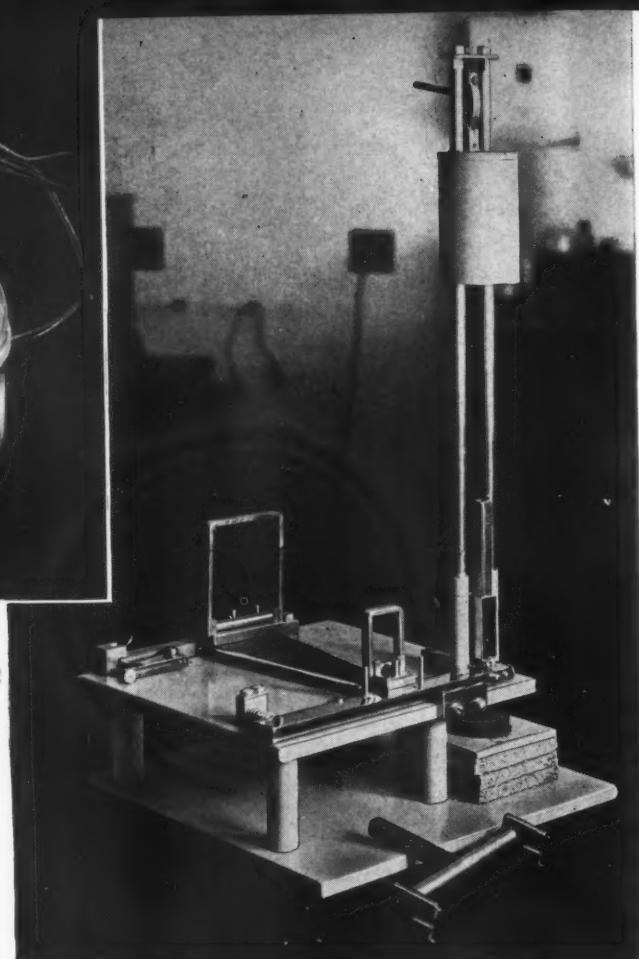


1

In pursuance of a long-range program for testing and development of improved packaging with paper-plastic combinations, The Institute of Paper Chemistry has set up a series of test methods for submitted materials designed to yield quantitative and reproducible results representative of coating materials rather than of coated cartons.

1—Apparatus to determine low-temperature flexibility.

2—Apparatus to determine water-vapor permeability.



2

Plastic dips for paper packages

... *The Institute of Paper Chemistry program of evaluation**

by *T. Alfred Howells†*

Under the sponsorship of the Quartermaster Food and Container Institute in Chicago, there has been initiated at The Institute of Paper Chemistry the first step in a long-range program for the development of improved packaging with paper-plastic combinations. The present phase deals with the development of sound methods for the evaluation of those fundamental properties of plastic materials considered important for use with paper or paperboard for packaging applications.

During the past ten years, numerous plastic materials have been developed and many of them have been used as thin films for packaging applications. However, bags and wraps have certain limitations and disadvantages and dipping or completely immersing a package in a molten material appeared to be the simplest means of applying a continuous film. Recognizing the possibilities of such new materials for use in dip-coating applications, the Office of The Quartermaster General in 1945 requested The Institute of

Paper Chemistry to initiate an investigation of the possibilities of improving the wax dip-coating materials then in use. The desirable characteristics for such a material were described in an article which appeared in MODERN PACKING in July 1945.¹

The proposed program was divided into two parts, of which the first was a short-range study having as its purpose a survey of the materials immediately available for substitution in the existing dipping techniques used on K-rations. Following this phase, if it then appeared desirable, a long-range program was to be considered for development and application of satisfactory materials, including modifications of technique if necessary.

The short-range study had three objectives: (a) to set up a series of the most significant testing procedures for the relative evaluation of the materials submitted, (b) to obtain samples of available dipping materials from commercial sources and (c) to evaluate materials obtained under (b) by techniques set up under (a).

* This paper has been released for publication by the Quartermaster Food and Container Institute for the Armed Forces, Army Service Forces.

† The Institute of Paper Chemistry, Appleton, Wis.

¹ "Wanted—a Plastic Dip-Coating for Cartons." MODERN PACKAGING, 18, No. 11, 131 (July 1945).

Some of the properties listed in the article mentioned above as desirable characteristics of a satisfactory material are more essential than others. Some are fundamental characteristics of the basic components, whereas others can be controlled by minor changes in the formulation, such as a possible adjustment of pH or the addition of moldproofing agents. In order to save time, the following were chosen for a screening evaluation:

1. Temperature of application and viscosity at application temperature
2. Blocking behavior at 140 deg. F.
3. The effect of handling at -20 deg. F.
4. Water-vapor transmission
5. Stability at the temperature of application
6. Odor and taste

In considering the various types of tests that might be used for a quick but quantitative and reproducible evaluation of the materials submitted, the lack of fundamental test methods was keenly felt. As an example, if it was desired to know the blocking characteristics of a new material, it was necessary to prepare a coating of this material on some base stock and then test this coating under arbitrary conditions. An arbitrary blocking pressure was chosen which, it was hoped, would be representative of the pressures to be encountered in service. A blocking time was chosen largely as a matter of convenience in running the test and the samples were then placed together and tested at a set temperature or series of temperatures and the results were based on the operator's opinion of whether the materials stuck together or not. If, later, an application was desired in which higher pressures were encountered, it was necessary to repeat the whole test. No information was available on the effects of times of contact longer than were convenient for tests.

The situation with regard to water-vapor resistance and low-temperature flexibility was even worse. The former property could be quoted only as a given transfer of water vapor under given conditions of temperature and humidity for a sample prepared by coating a given base stock with a film of a certain weight under arbitrary conditions. If the coating conditions were such that a poor film was obtained because of excessive penetration, shrinkage cracks, pin holes or non-uniform thickness, a material with intrinsically good water-vapor resistance would be unjustly penalized.

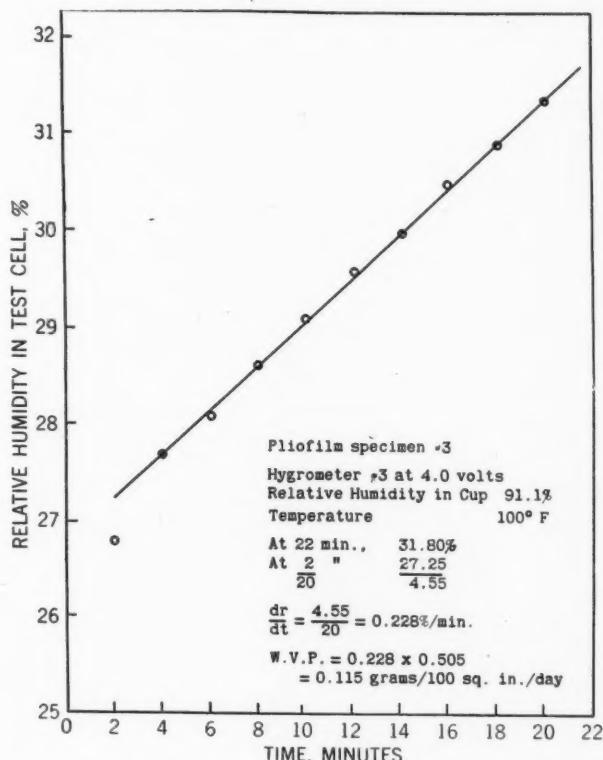
As an example of this situation, examination of some commercially dipped cartons has indicated a variation in the thickness of wax applied to the various sides of a single carton from 3 mils to 17 mils (0.003 to 0.017 in.). Areas of varying thickness may be likened to electrical resistances connected in parallel, the areas of least thickness having an effect on the over-all transmission out of proportion to its effect on average thickness. Let us, for example, consider a material which, in a film 10 mils thick, has a transmission of 0.10 gram per 100 sq. in. per day under a given set of conditions but is used in an application where half the area is 3 mils thick and half is 17 mils thick. The average thickness will still be 10 mils. In an ideal material, the trans-

mission will be inversely proportional to the thickness. If we consider the carton to have an area of 100 sq. in. then 50 sq. in. will have a thickness of wax of 3 mils and a transmission of $\frac{50}{100} \frac{10}{3}$ (0.10), or 0.167 gram per day. The 50 sq. in. of thickness of 17 mils will have a transmission of $\frac{50}{100} \frac{10}{17}$ (0.10) or 0.029 gram per day.

The total transmission of the carton will be 0.167 + 0.029 or 0.196 gram per day for the 100 sq. in., or almost twice what it would be if the wax were applied in a film of uniform thickness.

A series of test methods for submitted materials was set up in which emphasis was placed on a choice of methods to yield quantitative and reproducible results representative of the coating materials themselves, rather than of a coated carton made under some arbitrary set of conditions. Arbitrary blocking conditions of 24 hours at 1 p.s.i. and 140 deg. F. were chosen. Water-vapor permeability was determined by a technique of casting wax films of various thicknesses on non-moistureproof cellophane and determining water-vapor permeability by means of an electric hygrometer technique which permitted the quantitative detection of the passage of amounts of water vapor as low as 1.5×10^{-5} gram through a sample 3.5 in. in diameter. For evaluation of low-temperature handling, a technique previously developed at The Institute of Paper Chemistry was adapted to these samples. This involves the determination—at low temperatures and under rates of stress application comparable with those encountered in the handling and shipping of containers—of the ability of a (Continued on page 176)

The sample curve illustrates the determination of WVP.





PHOTOS, SHERMAN PAPER PRODUCTS CORP.



Flexible corrugated makes a convenient and efficient cushioning material for many fragile products.

Cushioning materials...1. Functions and uses

by Harold H. Berk

The primary function of cushioning materials in a package or container is to protect the contents therein from damage. This protection is afforded in one of several ways, most outstanding of which is by means of the shock-absorbing quality of the material itself.

Cushioning is concerned with the minimizing of shock which results from the application of direct or indirect forces upon the cushioned item. The direct forces are applied when there is a direct contact; for example, a shipping container dropped heavily on a corner causes a concentration of the inner items to

The scientific and economical cushioning of packaged products—as distinguished from safe but wasteful over-packaging—is a comparatively new branch of the packaging art. Its progress has been stimulated by war experience and by the development of instruments to measure shock accurately, previously reported on in these pages. Here, for the first time, is a comprehensive review of the principles, materials and functions of cushioning—an article so complete that it should stand as the definitive reference on this subject for a long time to come. The author is a former packing and crating specialist for Army Air Forces and Processing and Packing Branch, Army Engineer Board.

come into contact with one another. Indirect force, on the other hand, is the resultant of a direct force when there is no direct contact; for example, an article shifts in the container when the container is moved.

To choose a good cushioning material is to choose one which will absorb most of the shock to which a package might be subjected in handling and while in transit, and to such a degree that the contents are not damaged. Quite frequently, it is necessary to disassemble fragile and projecting parts from an item and repack them individually in order to protect them from damage. Fortunately, tests have been developed by the U. S. Forest Products Laboratory, other Government laboratories, and by industry actually to measure the amount of shock that various cushioning materials will absorb without deteriorating, thus aiding us in our selection.

Other purposes of cushioning materials are:

(1) *To provide space for deceleration of an item*—In being moved from a rest position, forces are brought upon the contents of a container, often resulting in damage, because of the shifting of the items within the container or by transforming the shock directly to the item.

These dangers can be overcome or at least be minimized by the use of cushioning materials to decrease the strength of the force required to stop motion, by means of increasing the distance through which it can act.

Cushioning materials are used to secure loose and free moving parts and to reinforce the position of exposed weak parts by means of being filled in the void spaces within the container. In many cases it is ad-

vantageous to use blocking and bracing instead of cushioning materials, especially when the voids are large and the items heavy. The amount of cushioning material to be used for deceleration of an item is dependent upon the distance through which the item will move within its cushioning when subjected to sudden shock or motion. It is to be noted that as the cushioning compresses during shock, its capacity as a shock absorber is reduced. If it does not possess the desired resilience, it will become permanently compressed and cease to function as a cushion.

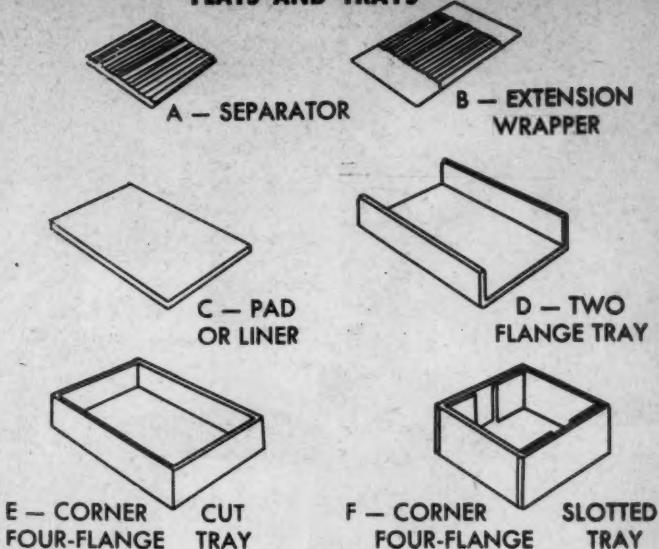
(2) *To separate and protect items from each other*—Various types of cushioning materials are used for special purposes in interior packing. Most notable among these is corrugated fibreboard, which is manufactured into pads, cells, trays, partitions and dividers for use in separating items from each other. This material is especially useful in that it has crushing resistance as well as shock-absorbing properties. In the packaging of liquids, another type of cushioning material is required. For this purpose a material should be used which can absorb any spillage from crushed metal containers and broken glass bottles and jars which contain liquids. In addition to being able to absorb spilled liquids, the cushioning material should not lose its resiliency upon becoming moist. (Excelsior is excellent for this purpose.)

(3) *To make regular shapes of irregular shaped items*—Cushioning may be utilized for building up irregular-shaped into regular-shaped items. It is well to point out that unless the conditions involved are well defined, classification as to the shape of an item is largely a matter of judgment. For this digest we shall classify a shape as being "regular" when it requires no building up or only a small amount of building up on any or each face to make contact with each corresponding face of its holding container. Another means of accomplishing the change from irregular to regular shapes can be brought about by means of unit or intermediate packaging, using fibreboard boxes not only as containers but also as cushioning agents. In order to avoid argument as to whether a fibreboard box can be classified as a cushioning agent in itself, let it suffice that it is made up of cushioning material.

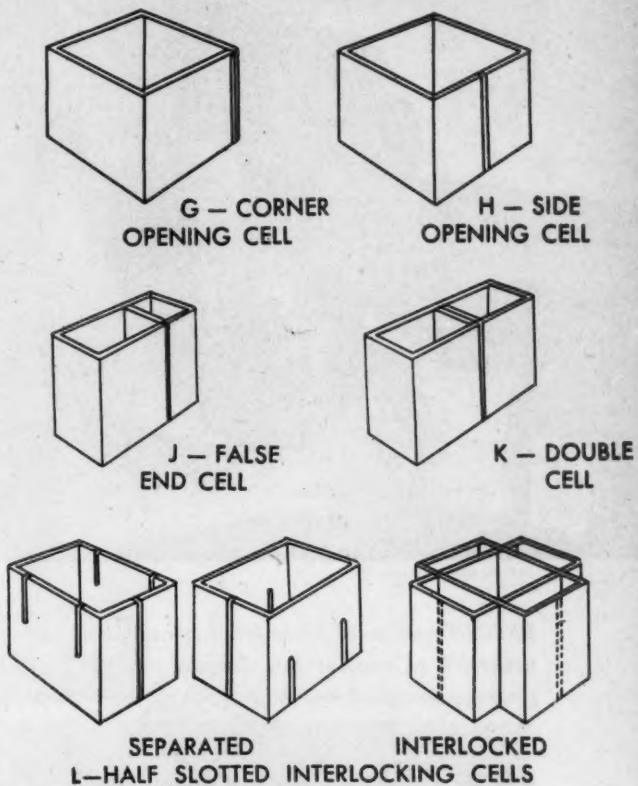
(4) *To protect the container*—Not only is cushioning used to protect the contents of a container, but it is also used to protect the container itself. This is accomplished by using a material which has the ability to resist crushing; by building up irregular- into regular-shaped items; by padding any projecting parts of the item; or by acting as a strengthener of the container, in which case the cushioning material is used to reinforce the various faces of the container. It is pointed out that in choosing a material with sufficient

As separators to prevent items within package from damaging each other, corrugated fibreboard may be formed into wide variety of cells, partitions, trays, other shapes.

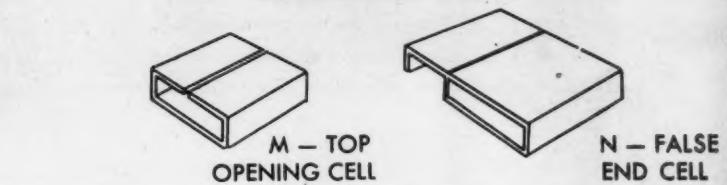
FLATS AND TRAYS



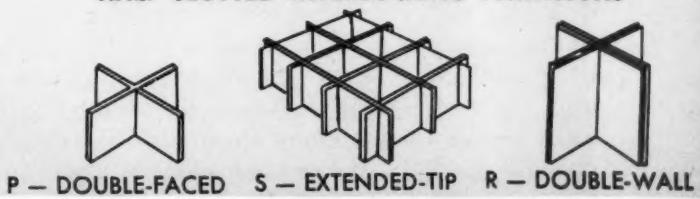
VERTICAL CELLS



HORIZONTAL CELLS

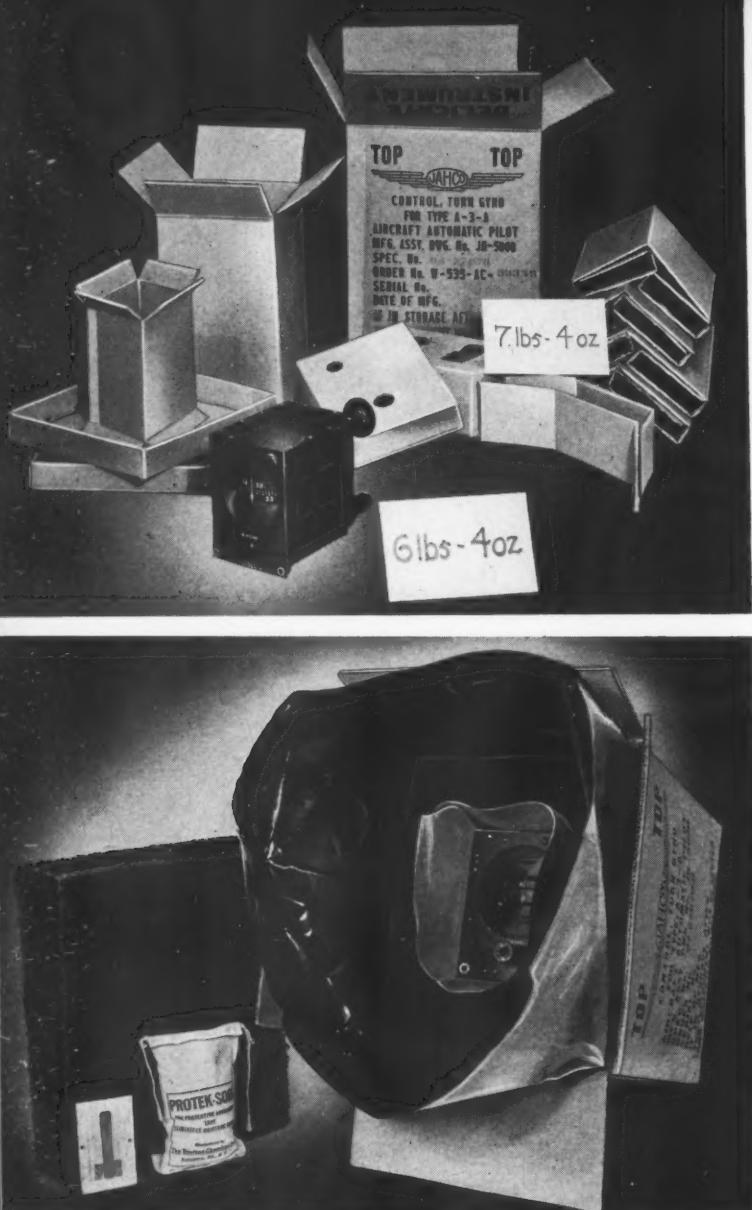


HALF SLOTTED INTERLOCKING PARTITIONS



MISCELLANEOUS





PHOTOS, JACK & HEINTZ, INC.

BEFORE—(Above) corrugated board alone was used successfully to protect this fragile aircraft instrument, but packing material weighed a pound more than instrument.

AFTER—Later package for same instrument used flat curled hair latex as cushioning in Method II dehydrated pack at great saving in weight and cubage. Note that instrument is covered with greaseproof, acid-free, non-corrosive paper to prevent corrosion that might occur if instrument were permitted to contact cushioning agent.

rigidity to resist crushing (a blocking function), it is necessary to choose one with poor cushioning properties.

(5) *To aid in equalizing and distributing the weight of a load within the container*—Cushioning materials can be used as blocking materials in that they are used to equalize and distribute the weight-bearing areas of a load. If the weight of an item is concentrated upon a small area on the bottom of a container, the container material may fail. If that same weight is spread over a large area of contacting surface, the weight per square inch is reduced proportionately, thereby reducing

possibility of failure. Cushioning materials such as fibreboard, molded papier maché, and other semi-rigid materials have been satisfactorily used in shipping those items the contacting face area of which was not proportionate—size to the item weight concentration—to the corresponding container face.

(6) *To protect the surfaces of articles from abrasion*—Quite often the need arises for protecting surfaces of articles from abrasion, which may be caused by interior blocking and bracing or from contact with the container walls. Cushioning materials, and especially felt, have been used for this purpose in blocking and bracing, and many materials have prevented abrasion that otherwise would have resulted from such contact.

In addition to protecting items, cushioning is also used for its protection of packaging material, such as barrier materials, etc., from abrasion and puncture that might occur because of protruding surfaces on the items contained therein.

Considerations in selecting a proper cushioning material

Having shown most of the important functions and uses of cushioning material, it is advisable to turn to some necessary considerations in choosing a proper material. As in selecting the proper type of package for a particular item having certain properties and individual characteristics, so must we select the proper cushion for its particular purpose.

In order to determine the suitability of a material as a cushion, we must know the various properties that the material possesses and its behavior when acted upon by other forces.

A good cushioning material should be resilient; should have endurance-impact qualities (retain its properties without deteriorating after repeated shocks and rough handling); must not have a great variation in its shock-absorbing capacity resulting from changes in moisture content; and in general should possess most of the properties which shall be discussed below.

(1) *Resilience*—In order to be a good cushion, the material must be resilient. It must be able to withstand shock without resulting in deformation or rupture to itself by having a degree of stretchability, or give, with power to revert back to its original shape. It cannot be too rigid or it will pass on all shocks rather than absorb them.

(2) *Dusting and durability*—Tests performed by the Forest Products Laboratory to determine whether cushioning materials dusted, revealed that practically all materials, with the exception of rubber and rubberized products, dusted to a degree that was objectionable in many cases when used in a pack containing a piece of equipment with moving parts. Dust from cushioning material may find its way into bearings and other moving surfaces and for that reason some equipment cushioned in materials known to be dusting should be previously wrapped with paper or protected against the entrance of dust by some other means. When the equipment tightly encloses the moving parts, this added protection is not necessary.

(3) *Effect of inundation and water resistance*—Another factor concerned with the suitability of a cushioning material is its characteristics upon soaking. It has been found that various untreated papers and similar materials possess satisfactory qualities to be considered as a good cushioning material while in the dry state. These same materials, upon being soaked with water, turned to pulp or disintegrated into small pieces, losing all of their cushioning properties and thus failing to serve their intended purpose.

To overcome this difficulty, most manufacturers of cushioning materials are treating their products with asphalt, waxes and resins to impart a water resistance to the material. Other manufacturers have developed cushions made of materials which are water-resistant in themselves, such as rubber products, spun glass, plastics, etc.

Inasmuch as the latter materials are much more expensive than some of the commoner and more available cushioning materials, it has been found advantageous and economical to enclose those materials having little or no water resistance in water-resistant paper sleeves and pads with sealed ends, or to limit the use of these materials to packages encased in individual waterproof containers.

The use of waterproof sleeves has resulted in a two-fold benefit; not only does it waterproof the material but it also keeps dirt, dust and other contaminants contained within itself from coming in contact with the articles being cushioned. It must be realized that those sleeves and pads with open ends are of little value if the cushioning is submerged in water, as they will permit the entrance of water.

In considering this factor, it is well to know whether



PHOTOS, JACK & HEINTZ, INC.

Latex-impregnated hair is formed into a conforming shape for this Method II-d preservation of instrument in a cylindrical metal container.



Asphalt-impregnated pulp may be molded to shape of the item and its container to form snug fitting package.



PHOTO, KIMBERLY CLARK CORP.

Creped cellulose wadding in blanket form makes good cushioning for Carborundum files, which are breakable.

the cushioning agent is to be used within a water-vaporproof barrier where it is not subjected to moisture, or if it is to be used in a manner which subjects it to climatic conditions of alternate stages of moisture and heat. When used within a moistureproof package, almost any material can be used, provided that it meets all the necessary requirements for that package. On the other hand, when used outside of a barrier, it may be necessary to use a material similar to excelsior or latex-impregnated hair or fibre which does not lose its resilience when wet.

(4) *Amount of cushioning to be used, depending on weight and ruggedness of an item*—The weight and bearing area of an item and its ruggedness are decisive factors limiting not only the choice but also the use of cushioning materials.

As the weight of an item increases, denser cushioning materials must be used for protecting it. If the weight should be increased to the extent that the cushioning materials become so compressed as to lose their resilience, then it is necessary to use some other means to obtain the necessary protection.

Unfortunately there are no established set rules for determining the exact quantity of each cushioning material to be used for packaging, and only through the aid of various research laboratories are we approaching a better understanding of the limitations of the various available cushions.

In addition to the mathematical approaches presented by commercial and Government laboratories for determining cushioning requirements, man's ingenuity has enabled him to develop instruments which are proving to be of great value in this respect. The two instruments most recently brought to public attention are the G-Meter (MODERN PACKAGING, July 1946, p. 148) and the Cushioning Meter (MODERN PACKAGING, April 1946, p. 148, and August 1946, p. 141) which electrically express in gravitational units the measurement of any shock transmitted to a packaged item. By determining the peak shock that an unpackaged piece of equipment or material will sustain and correlating that reading with the shock measurement of the packaged item, the results can be translated into the amount of cushioning material necessary for adequate protection. It will be necessary, however, to establish a peak shock or critical number of "G's" for each item to be packaged along with a predetermined standard height for performing tests, and it appears that the fragility of the item may also play an important part in determining the safety factor for the cushioning required.

The Army and Navy Packaging Boards in collaboration with industry are endeavoring to standardize procedures for determining cushioning requirements. As a result of a recent collation, investigations are now taking place, and a thorough study of all available laboratory test results, reports, shock measurement devices and cushioning needs for both domestic and overseas packages is being made. The conclusion of this work may eventually lead to a systematic manner in which all cushioning problems can be solved.

Some agencies have published tables to show the amount of certain cushioning materials to be used depending upon the weight of the item to be packaged. These tables, however, make no special provisions for very rugged items which may require little cushioning, nor for very fragile items which may require a great deal of protection.

That the ruggedness of the item is as important as the weight in establishing the thickness of any cushioning material can be determined by using the same unit weights within a package and varying the ruggedness or fragility of the item. As the item becomes more fragile, more space is required for deceleration and, consequently, the thickness of the cushioning must be increased. The space for deceleration can be varied to some extent by varying the bearing area of the item, and in some instances it may be necessary actually to decrease the bearing area so that the item can take advantage of the cushioning.

There are some usually acceptable generalities which have been published to show the amount of cushioning required for packaging, but these too may oftentimes vary, depending upon the physical characteristics of the item. These will be discussed in the ensuing paragraphs.

In cushioning items, the cushioning should be not less than $\frac{3}{8}$ in. in thickness (Continued on page 184)



Standard Test Methods

4. Gas permeability of low-permeability films

1. Definition

The rate of gas transmission through film materials is expressed as the volume of gas transmitted at a specified temperature and relative humidity per unit of area in unit time. The volume of gas transmitted is calculated to standard temperature and pressure (0 deg. C., 760 mm.).

2. Intent and Scope

Flexible vacuum packaging of food products that undergo oxidative changes has potential economic advantages. The escape of evolved carbon dioxide in these and other food products is frequently involved. For these reasons it is desirable and necessary to have a method for determining the gas permeability of sheet material.

This method will make it possible to determine the relative gas permeabilities of a wide variety of films and will serve as a guide in the selection of suitable films for the packaging of coffee, dairy products, dehydrated vegetables, etc.

3. Apparatus

A. Description

1. *Glass Manometer*—This manometer (*M* in Fig. 1), with the attached mercury reservoir (*R*) and the stopcock (*S*), serves the dual purpose of recording the pressure change and of providing means for evacuating the space inside the apparatus.

The center arm of the manometer is made of capillary tubing of about 1.5 mm. internal diameter for the purpose of reducing the volume of gas space inside the apparatus and thereby increasing its sensitivity. The rest of the manometer is made of tubing of any convenient size.

The manometer is held in place by a nut (*N*) to which it is sealed with Cenco Plicene cement or other sealing compound of good adhesive properties and low vapor pressure. The hole through the nut is bored nearly the same diameter as the glass tube, to minimize the amount of cement necessary for this seal. The nut is screwed up against the thin rubber washer (*W*) and the entire joint is coated with shellac to ensure a vacuum-tight seal.

2. *Manometer Support or Stand*—This part of the apparatus consists of a 6 in. by 6 in. by $\frac{1}{2}$ in. metal base to which is attached an 8 in. long metal rod of suitable diameter to support the metal disk (*K*) and manometer (*M*).

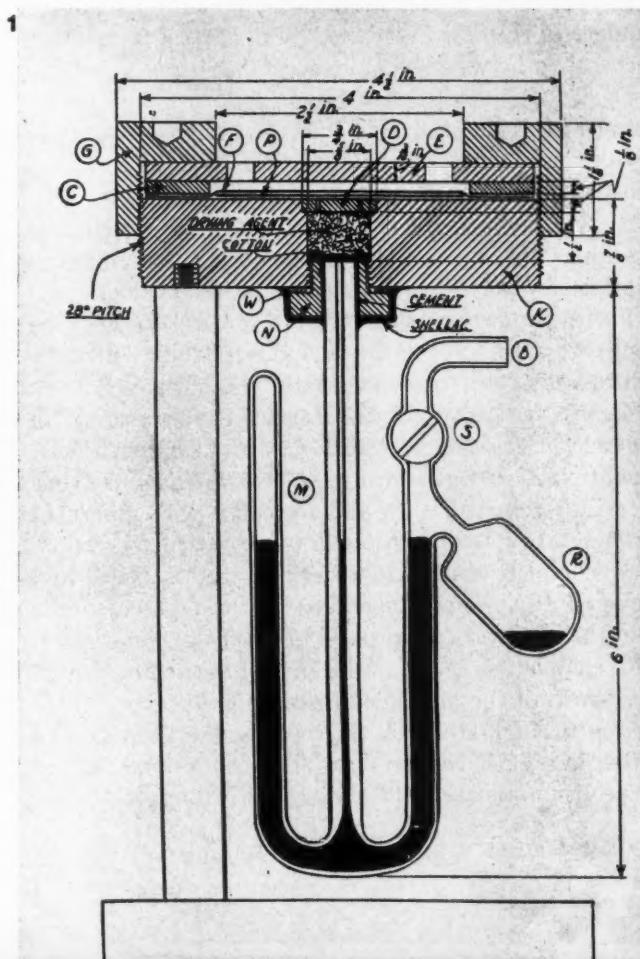
3. *Test Specimen Support*—This consists of the large metal disk (*K*), which presents a continuous smooth surface for mounting the test specimen, and to which is attached the glass manometer. The upper part of the hole in this disk is covered with a small metal disk (*D*) which has four small holes about 1 mm. in diameter for passing the gas into the manometer system. The top surface of this small disk is flush with the top surface of the large disk (*K*).

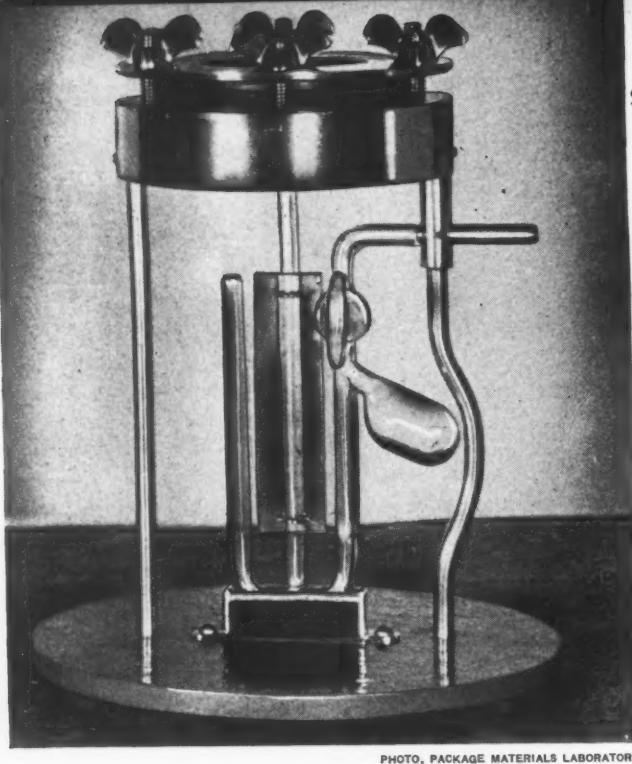
Note: For specific dimensions on the various parts of the above apparatus see Fig. 1.

B. Calibration and Adjustment

1. *Standardizing the Volume of the Apparatus*—The principal factor affecting the accuracy of this test, barring apparatus leakage, is the accuracy with which the volume of the apparatus has been determined. This volume is equal to the sum of the volumes of the holes in the metal disk (*D*), of the circular opening containing the drying agent minus the volume of the drying agent,

A cross-section diagram of gas-permeability apparatus.





PHOTO, PACKAGE MATERIALS LABORATORY

A photographic view of the gas-permeability apparatus.

and the capillary bore of the center stem of the manometer down to the mercury level of this stem.

The volume in the pore space of the filter paper (P) amounts to about 0.05 cc. and the volume change due to a mercury level change of 20 mm. in the center stem of the manometer amounts to about 0.04 cc. These errors in volume are small and can be neglected.

For purposes of simplification the volume of the apparatus has been established at 2.0 cc. To obtain this volume in spite of variations in equipment or changes in the drying agent, it is necessary to measure accurately the volume of the apparatus *without the drying agent* with a calibrating burette and then add to this volume just enough drying agent by weight (volume of drying agent can be calculated from its predetermined density) to give final apparatus volume of 2.0 cc.

2. *Testing the Apparatus for Leak Tightness*—Unless the apparatus is leak-tight, the gas transmission figures obtained for the test specimens will be of no value.

There are two possible sources of air leakage; the first is stopcock (S) and the second is the joint where the glass manometer is attached to the metal disk (K).

To test for leak tightness insert a rubber stopper in the hole in the center of disk (K) and seal with wax. Then tip the entire apparatus so that the mercury runs over into reservoir (R) and evacuate the apparatus through tube (B) with stopcock (S) in the open position. After complete evacuation, stopcock (S) is closed and the apparatus is tipped again so that the mercury runs from the reservoir (R) into the tubes of the manometer. With complete evacuation the level of the mercury in all three arms of the manometer should be the same. Air leaking through stopcock (S) will depress the mercury in that arm of the manometer. This can be remedied by the proper application of Cello-Grease in stopcock (S).

2. Air leaking through the metal to glass joint may be either pronounced or slow. A pronounced leak will quickly depress the mercury in the middle capillary arm of the manometer while a slow leak will depress the mercury at a much slower rate and may not be as evident. Leaks at the joint can usually be remedied by the application of Cenco Plicene cement and a coating of shellac.

4. Reagents and Accessories

(Letters in parentheses refer to Fig. 1)

A. *Cenco Hy-Vac pump*—used to evacuate the manometer system.

B. *Millimeter measuring scale*—used to measure the depression of the mercury column in the center arm of the manometer.

C. *Rubber gasket (C)*—holds specimen in place.

D. *Metal disk (E)*—this has two small holes diametrically opposite one another, one acting as an inlet and the other as an outlet for a gas stream when measuring the transmission of gases other than air.

E. *Retaining ring (G)*—this metal ring screws on to disk (K) and holds the rubber gasket and disk (E) firmly and tightly in place.

F. *Mercury*—this manometer fluid must be free of all dirt, grease or any other impurities. For the best results, the fluid should be redistilled before filling.

G. *Drying Agent*—used to reduce the water-vapor pressure inside the apparatus to less than 0.5 mm. of mercury.

This *drying agent* is made up by mixing 100 grams of Dehydrite (anhydrous magnesium perchlorate) with 20 grams of Indicating Drierite (anhydrous calcium sulfate). Only the screen fraction of this mixture passing 14 mesh and retained on 40 mesh should be used. The density of this screen fraction is determined by the displacement method in saturated solution of toluene.

H. *Cello-Grease, Eimer & Amend No. 14-637*—used to seal the test specimen to the apparatus.

I. *Filter paper (P), Whatman Filter Paper No. 1—4.25 cm. diameter*—used to define the area of the test specimen. Other sizes may be used depending on the permeability of the test specimen.

J. *Cenco Plicene Cement*.

5. Test Sample

A. *Sampling*—The test specimens shall be representative of the material to be tested. The film is inspected for flaws, pinholes, etc., and a representative section of about 4 in. square is selected. The sample is then die cut to $3\frac{1}{2}$ in. in diameter. Since the test is run in duplicate, two samples are taken from each material to be tested.

B. *Preparation*—All the samples are conditioned according to the standard TAPPI procedure (T402M-44) for a period of 12 to 24 hrs. at 50% R.H. and 73 deg. F. (23 deg. C.).

6. Test Procedure

A. *Standard Conditions*—Place a small piece of filter paper over the top of the (Continued on page 178)

DAVISON silica gel

prevents caking

FREE FLOWING



**The Answer to
a vexing Packaging Problem**

Where caking and lumping are caused by moisture forming a film of saturated solution around individual particles, causing them to adhere, Davison silica gel in most instances will take up this moisture in contact with the material (in a sealed moisture-proof container) and present a dry, free-flowing product to the consumer.

Davison silica gel is chemically inert to most compounds—and is non-toxic. It should not, however, be mixed with the product where a slight turbidity (harmless) is undesirable in the resulting solution.

*Reg. U. S. Pat. Off.

Caking and lumping in most crystalline and finely powdered materials may be inhibited by the addition of Davison silica gel—less than 1% often proving effective.

Where it is undesirable to mix silica gel with the product—the same result may be obtained by the addition of a bag of Protek-Sorb* silica gel to the sealed moisture-proof container.

Caking and lumping make up a vexing problem in many fields—from bulk chemicals in drums to packaged foods, pharmaceuticals and cosmetic powders.

Caking and lumping not only make some products unattractive to the eye but are time wasters in that material must be dug out of containers... it is also difficult to weigh or measure caked material. A free-flowing powder is often required in order to accomplish packaging with automatic machinery. Consult the Davison technical staff, which is at your service, for problems in this field.



THE DAVISON CHEMICAL CORPORATION
Progress through Chemistry

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Canadian Exclusive Sales Agents for PROTEK-SORB silica gel • CANADIAN INDUSTRIES LIMITED • General Chemicals Division



Questions and ANSWERS

This consultation service on packaging subjects is at your command. Simply address your questions to Technical Editor, Modern Packaging, 122 East 42nd St., New York 17, N. Y. Your name or other identification will not appear with any published answer.

Automatic inserter

QUESTION: We are interested in inserting paperboard in cellophane bags for the packaging of nuts, candy, etc. We have been inserting this board by hand but are more than interested in obtaining some device or machine, automatic or semi-automatic, which would facilitate or possibly take care of getting this board into the bag.

ANSWER: There does not appear to be available automatic machinery for the insertion of paperboard stiffeners into small cellophane bags. However, it may be that some of the machine companies are working on this problem and it is suggested that you write to companies manufacturing bag-handling equipment and also to the Package Machinery Institute for possible information concerning equipment. There have been other package forms which are similar to the one which you want to use and which can be made by automatic means. Such package forms would involve the wrapping of cellophane or other heat-sealing material around a piece of paperboard. The closures can be either made by heat sealing or by adhesives. I suggest that you contact the manufacturers of this type of equipment for further information as to size, speeds, availability, etc.

It is recommended that you choose very carefully the paperboard which is to be used in this way and which will be in direct contact with fatty products such as meats. The board should be made from purified pulps; otherwise, the absorption of fats from the nuts will produce unpleasant odors and an improper board can also accelerate the deterioration of the prod-

uct. It may be necessary for you to use a greaseproof coating on the board to prevent discoloration and staining by fatty products, or perhaps a greaseproof and heat-sealing coating applied to the board will facilitate fabrication.

In any event, you must be very careful in the selection of the paperboard, any coatings, printing inks or other similar materials which may be used.

WVP for frozen foods

QUESTION: We have just evaluated one of our materials for water-vapor permeability at 0 deg. F. These tests showed a permeability value of 0.08 gram/24 hrs./100 sq. in. at 0 deg. F., using calcium chloride in the test cups. A creased specimen of the same material showed a permeability value of 0.59 gram using the creasing procedure as recommended by Forest Products Laboratory. Would you say that a film having these permeability values, flat and creased, would be suitable for frozen food packaging purposes on the basis of water-vapor permeability values only?

ANSWER: A material having a flat water-vapor transmission of 0.08 gram per 100 sq. in., per 24 hrs. at 0 deg. F. can be considered as useful for some frozen food products. However, it cannot be recommended for long storage—that is, over six months or for the storage of products such as meat.

However, in view of the fact that your material showed a seven times increase in permeability after creasing would tend to disqualify it for serious consideration in the frozen food field. While there has never been any official standard, experience indicates the maximum level for transmissions should be 0.05 gram in the flat for a packaging material which is to be used in normal packing, storage and shipping through retail channels. Furthermore, such a material should not show an increase of more than the creased portions, which would give it a creased limit of 0.08 gram.

The effect of creasing would depend upon the type of package and a variety of other factors which are not easy to evaluate since the transmission tests are made after creasing by an arbitrary procedure.

CORRECTION

Due to an inadvertent transposition during make-up of the article "For Better Usage . . . Terminology of Water-Vapor Transmission Testing," (pp. 137-193, July 1946), the reciprocal stated for an index of water-vapor resistance of cellophane (p. 137) was printed as $\frac{0.5 \text{ gram}}{1} = 2.$ "

Obviously this should have been $\frac{1}{0.5 \text{ gram}} = 2.$ "

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Products "Dry Packed" with Desiccite are protected against damaging moisture. Metal products reach the ultimate user free from damaging corrosion—bright with "Factory Fresh" sales appeal.

Foods retain their freshness, crispness and taste.

Desiccite—a Filtrol product is the new, highly efficient, *low-cost* drying agent. A small quantity placed inside an adequately moisture-proof package or shipping container protects the contents.

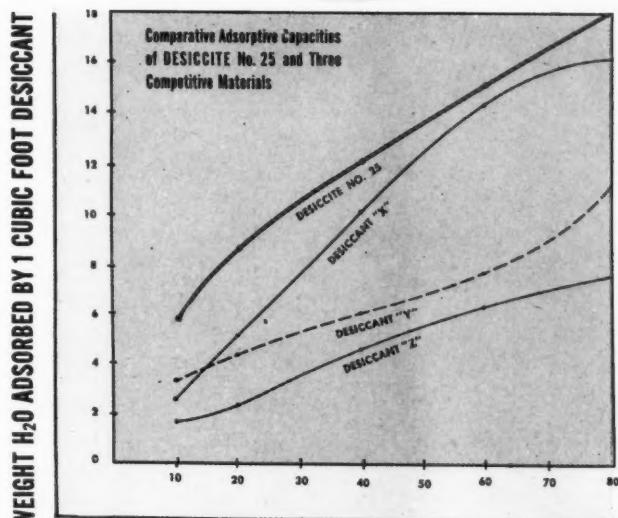
Filtrol engineers will gladly consult with you on your packaging problems. Write today for full information.

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The above comparison of desiccants represents the four most widely used types, namely Desiccite No. 25, Activated Alumina, Anhydrous Calcium Sulphate and Silica Gel.

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to damage the glue in paperboard boxes made with URAC* Resin 180

Corrugated containers, made with Cyanamid's URAC resin 180 in resin-starch adhesives, are really water-resistant. Pack them with ice for shipment of refrigerated food and they arrive at their destination intact, ice scarcely melted. Expose them to continuous moisture from condensation or sweating during shipment or storage, and they stay in good condition. Immerse them in salt water, and they hold up. Weather and climate have no adverse effect.

Such water resistance—plus the light weight of paperboard boxes—provide many advantages: greater packaging strength—reduced losses from broken containers or spoilage—lower tare weight. In addition, boxes are tough enough to withstand rough handling.

Corrugated containers, solid fiber containers, spirally and convolutely wound tubes

can all be made water-resistant with adhesives incorporating URAC resin 180 in conventional starch pastes. We shall be glad to supply additional information, or contact your box supplier or paper mill direct. American Cyanamid Company, Plastics Division, 34-B Rockefeller Plaza, New York 20, N. Y.

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WASHINGTON REVIEW

● **Commerce Conferences**—Two conferences of businessmen held in Washington recently at the call of the Commerce department appear to lend strength to the Government's assertion that it is seeking to help business get back on a peacetime basis as rapidly as possible.

At one of these meetings, the National Distribution Council was formed with the announced function of "stimulating American business to use every practical means whereby America's ability to distribute and consume the products of its farms, waters, mines and factories can keep abreast of its enormously increased capacity to produce."

While the announced objectives of the Council, which will meet periodically and gather and disseminate information looking toward increased distribution facilities, are general, the fields covered by many of the objectives are not only closely allied to, but directly related to, the industries which produce the packages in which goods are merchandised and distributed.

Among the phases of distribution which the Council will cover in detail are the planning of sales programs, including sales promotion and advertising, reduction of distribution wastes, establishment of universal definitions for terms commonly used in the field of distribution, and stimulation of "the gathering, creation, and, in particular, the wider circulation of factual information about what distribution is, how it functions, and the service contribution which it makes to our way of living."

The other Commerce-called conference was a meeting of representatives of some 50 or more national retail trade associations, who heard addresses by Commerce Department representatives and, later, gathered into groups for "executive sessions" on common problems.

While packaging, as such, entered into the discussions only generally, one Commerce Department official, Nelson A. Miller, chief of the Marketing Division, Office of Domestic Commerce, pointed out that the problem of adequate packaging was as much a part of retailing as the many other phases discussed. In discussing the present situation with regard to packaging materials, Mr. Miller said in part:

"Demand for all types of converted paper products is still far ahead of supply, owing, in large part, to the inability of independent converters to obtain adequate

supplies of paper and paperboard. Retail stores report inadequate supplies, particularly in such items as kraft wrapping, coated printing papers, tissue and fine papers, grocery bags, paper cups and boxed facial tissue. With the current sustained strong demand there has apparently been little inventory replenishment, and there appears to be little prospect of any appreciable easing in the situation until the new paper and board capacity now under construction comes into operation."

In discussing the "new ideas, too numerous to mention" in retailing trends, Mr. Miller mentioned pre-packaging of fresh produce and meats as one of the developments rapidly coming to the fore, and asserted that "the trade press and trade associations are doing a very creditable job in keeping retailers up to date."

● **End of Glass Standardization Order**—A revocation of L-103 requiring manufacture of standard sizes and shapes of glass containers is expected momentarily, following consultations recently held between CPA and the glass container industry. An end of L-103 would mean that private molds and the manufacture of new, special shapes of glass containers could be resumed. An end of the standardization order was promised for this fall several months ago, and was scheduled for issuance after the industry got over the seasonal food pack demands. Later, strikes caused the CPA to blow cold on its assurance, but only a few weeks ago it was again said the ban would be lifted.

It is said that the short supply of soda ash still constitutes a bottleneck in glass production, but total production in July was substantially greater than shipments.

While many of the cosmetics and toiletries makers are spearheading the drive to have the order revoked, it is understood here that some manufacturers of glass containers are not too anxious for abandonment of the standard containers. However, there is no such fight being waged for retention as for abandonment.

● **Low-Price Cosmetics Decontrolled**—Cosmetics which had been retailing for less than 25 cents per unit have been removed from price control entirely. OPA says that production costs made decontrol action necessary.

● **New Bottles for Prescriptions**—Nine

states now require that all prescriptions be filled only in new bottles, according to a survey conducted by a trade association in the drug industry.

● **Can Shipments**—Eighty-five per cent of the 240,000 short tons of metal cans shipped in June were designed for the packing of food products, Census Bureau reports. The food cans, which amounted to 205,000 tons, dropped 4% below May on a tonnage basis. Total can shipments were 3% under May's, but they were 9% over June 1945.

● **Vegetable Adhesives Out**—Virtually all vegetable adhesives have been removed from price control.

● **Lining Paperboard Upped**—OPA has granted price increases for converters of lining paperboard to prevent curtailed output of lined paperboard because of higher conversion and paper costs. The increases, now being reflected in marketing of lining paperboard, are 40 cents per 100 sheets (25 by 40) where the converter supplies the lining paper, and 25 cents where the customer provides it.

● **Some Set-Up Boxes Decontrolled**—OPA has also decontrolled set-up paperboard jewelry boxes, including those made of board combined with other materials.

● **Wood Pulp Imports**—Although imports of wood pulp from Sweden and Finland are not running so high as had been expected, through the end of September, imports approximate 450,000 short tons, more than 80% of it from Sweden.

● **Container-Machinery Tie-In Prohibited**—Under a consent judgment entered in U. S. District Court at San Francisco, Owens-Illinois Glass Co. is prohibited from tying-in the use of its vacuum-packing machinery to the purchase of its glass containers and closures, or from engaging in practices which will have a similar effect. The decree requires the defendant to license at reasonable royalties its patents relating to the vacuum-packing machinery involved in this proceeding. In the event, however, that the judgment is violated, the defendant is required to dedicate patents relating to vacuum-packing machinery under their control to the public, royalty-free and without any other restriction.

TEA TIME Treat

Here's a popular recipe for a cheerful interlude before the open fire on a bleak day . . . hot buttered toast, tea and marmalade. But the piquant flavor of Wellman's Bitter Sweet Marmalade is so appealing that with many families it is a favorite around the clock. Lunches, bridge parties, buffet suppers or bed time snacks . . . this marmalade seems to fit right in.

Wellman's Orange Marmalade is manufactured from fresh California fruits and cane sugar by Wellman Peck & Company at San Francisco. This company, which has nine distributing plants in California, is another on the long list of names prominent in the food field using Crown Screw Caps as a closure for their products. Only Crown Screw Caps have the patented Deep Hook Thread which grips under the glass thread of the container. They give a tighter seal with any given amount of application force, yet they are easy to remove. Crown Cork & Seal Company, Baltimore 3, Md. *World's Largest Makers of Metal Closures.*



CROWN CLOSURES

Equipment and Materials

MATERIALS HANDLING EQUIPMENT

The American MonoRail Co., Cleveland, Ohio, presents a new "close clearance" grab for handling narrow wooden boxes up to



20 ft. in length, quickly and safely. Operated from a single hoist hook, the gripper jaws are pulled together, parallel to the load, by the plow-steel cable threaded around the sheaves. Loads up to 1,000 lbs. are held securely. The narrow jaws allow close spotting of unwieldy boxes with little lost motion.

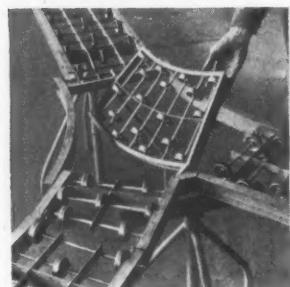
VIBRATORY FEED WEIGHERS

The new line of weighing and filling machines for dry products, known as Elec-Tri-Pak Weighers, illustrated in the article, "Cracker Operation," MODERN PACKAGING, April 1946, pp. 104-106, has been announced for general sale by the manufacturers, the Triangle Package Machinery Co., Chicago.

ATTACHMENT FOR CIRCULAR STENCILS

A new "Circular Feed" attachment perfected by Marsh Stencil Machine Co., Belleville, Ill., enables users of straight cutting stencil machines to change over quickly to the cutting of circular stencils and vice versa. No new method or extra steps are required; letters are spaced automatically and accurately with word spacing the same as when cutting a straight stencil. Use of the new attachment is said to effect a considerable saving since making a circular oil board stencil would cost only a fraction of the purchase price of a hand-cut metal circular stencil.

SWITCH FACILITATES DOUBLE PRODUCTION LINES



Speedways Conveyors, Inc., Buffalo, N. Y., has developed a new piece of materials handling equipment, known as the "Y" Flip switch, which speeds up loading and unloading materials and makes possible the efficient operation of double production lines. Made in the form of a "Y," with two limbs or arms each making a 45° angle, the new "Flipswitch" permits the flow of cases, cartons,

boxes, etc., in either direction, simply by flipping the switch manually. Available in several widths from 12 to 24 in. for use in conjunction with the company's standard gravity conveyors.

ELECTRONIC HEATING GENERATOR

A combination induction and dielectric heating generator, known as the Ther-Monic M-285C, is a recent development of the Induction Heating Corp., New York. Especially designed for use in experimental laboratories, testing depots and development research departments, the generator is provided with two separate, interchangeable oscillator sections, changeover being accomplished simply by removing one oscillator and replacing it with the other. When operating as a dielectric heating unit, it is said to be useful in sterilization and de-infestation of packaged foods, as well as preheating and polymerizing of plastics. Other applications, the company states, include the treating, drying and processing of leather, paper, ink and ceramics.

SELF-FEEDING HEAT SEALER

A new self-feeding sealer, Model SF 46, is announced by Doughboy Industries, Inc., New Richmond, Wis., which handles all heat-sealing materials and can seal paper labels onto cellophane bags at greater speeds, it is said, than are possible with manually fed machines. The new device incorporates such desirable features as uniform preheating, double drive and synchronized feeder mechanism. It is quickly adjustable for bags of different lengths; handles 70 to 80 average sized bags per minute; needs no extra support for bags containing up to 8 oz.

IMPROVED CARTON STITCHER



The Heller Co., Cleveland, Ohio, announces the development of a portable foot-operated stitcher that is said to steel-staple shipping carton bottoms in one-third the time required for sealing with glue, silicate or tape. The stitching head, the company claims, is foolproof and does not require oiling; loads quickly a long strip of preformed steel staples in many lengths up to $\frac{1}{16}$ in. and in a variety of widths. The anvil bar has a pedal release to speed the handling of deep cartons up to 31 in.

Fast and easy to use are further claims made by the company.

PRINTING SERVICE ON FLEXIBLE-CORRUGATED

New equipment for printing flexible-corrugated has been installed by Sherman Paper Products Corp., Newton Upper Falls, Mass., which makes possible the printing of practically any overall design as well as trade marks and slogans in any one color. This service offers a low cost advertising medium.

AUDIBLE POINT-OF-SALE MERCHANDISER

A new electronic wire recorder, called the "Sound Salesman" conveys spoken or musical messages about products at the point of sale. Houses in a unique, sound-engineered black plastic cabinet with Chinese red grille (Continued on page 162)



"Hands-Off" Visibility

NO need to choose between *protecting* merchandise against shopwear, dust, handling . . . and *displaying* it prominently, invitingly, so that customers simply can't pass it by. Not any more! Packages fabricated of Eastman Acetate Sheet provide all the protection any merchant could ask for. At the same time—thanks to their transparency, their sparkling optical clarity—they display products at their best . . . show them attractively, in their true colors . . . offer customers a standing invitation to stop, look, and buy . . .

The current supply of Eastman Acetate Sheet is not sufficient to meet the continually increasing demand. But the Kodak Transparent Packaging Laboratory, in Rochester, is always available to demonstrate fabrication methods.

Cellulose Products Division

Eastman Kodak Company, Rochester 4, N. Y.

Eastman Acetate Sheet

Attracts . . . Protects . . . Sells

Kodak

Equipment and Materials

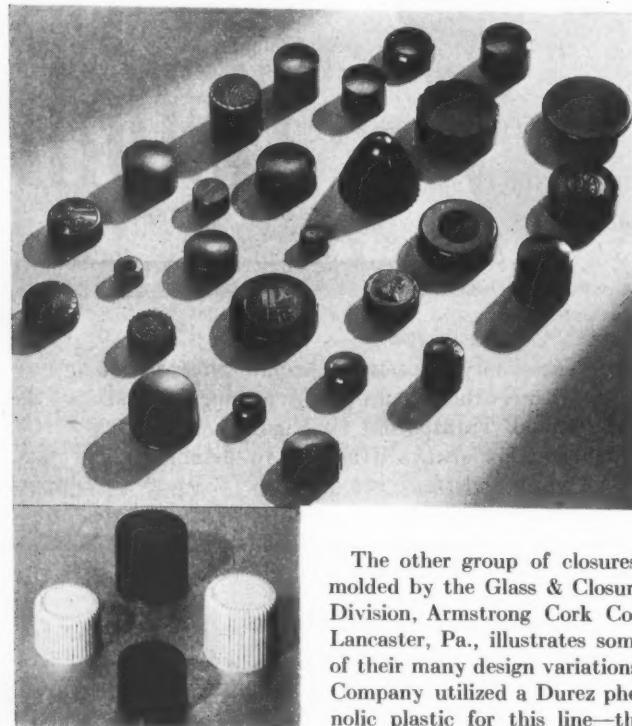
(Continued from page 160) and trim, the sound mechanism operates merely by plugging in on any current. Its photoelectric switch, which actuates the wire recorder, can be located in the floor, wall, ceiling or the display itself, to suit local conditions. Merchandiser provides single or multiple messages, with rest periods on repeat messages. The makers, Sound Media, New York, report it may also be used to good advantage in calling attention to safety precautions in stores and factories, and that it is as inexpensive to operate as an electric phonograph.

IMPROVED "SHEETER-GLUER"

The Miller Wrapping & Sealing Machine Co., Chicago, announces its new Corley-Miller Model BL "Sheeter-Gluer." This model is said to be a greatly improved machine, in many respects, over the Model SW which it supersedes. The machine glues, cuts and delivers sheets of cellophane or paper from rolls, and delivers the pre-glued cut sheets onto a table-height conveyor accessible to one or more operators. Equipped with variable speed drive, it sets the pace for wrapping, banding or bundling of such items as stationery, textiles, bottles and other irregular shaped objects which do not lend themselves to a machine wrap. May be supplied to pre-seal printed labels or bands to the cut sheets, if desired. Mounted on heavy casters, the machine may be readily moved when necessary. Driving gears are enclosed in oil in the new model. Other major improvements include rotary actuation of the shear-type paper-cutting knife as well as of the running glue line mechanism.

PHENOLIC CLOSURES AGAIN AVAILABLE

The Closure Division of Owens-Illinois Glass Co., Toledo, Ohio, announces a new line of plastic closures of urea formaldehyde and phenol formaldehyde composition. Known as the Empress, this line will be available in a variety of colors and in a wide range of sizes, suitable for drug and cosmetic packages (below).

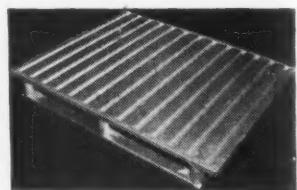


The other group of closures, molded by the Glass & Closure Division, Armstrong Cork Co., Lancaster, Pa., illustrates some of their many design variations. Company utilized a Durez phenolic plastic for this line—the material having been especially

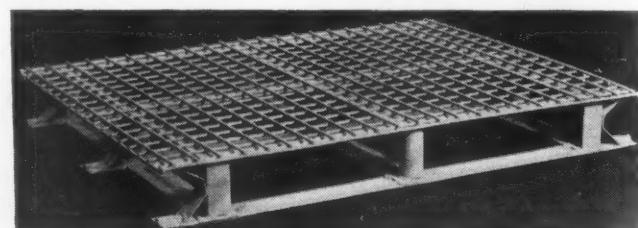
formulated to insure adequate strength as well as immunity to alcohol and other deteriorating agents with which the closure may come in contact.

NEW LIGHTWEIGHT PALLET

The Reynolds Metals Co., Richmond, Va., announces an all-aluminum pallet 40 in. by 48 in. weighing only 36 lbs. It may be lifted and moved about with little effort. In addition to the handling of goods on pallets in unit loads by means of power-driven fork trucks, this aluminum pallet has an overhang of upper deck at each end which permits loading aboard ship by means of safety bar-type slings. Made of newly developed high-strength aluminum alloys, the pallet has withstood loads up to 26,000 lbs. without damage, the manufacturer claims.



Another lightweight 8-way pallet of unique construction is the steel wire pallet made by H. E. Fletcher Co., West Chelmsford,



Mass. Of welded construction throughout, the top face is composed of No. 2 gauge high-tensile steel wire welded together on two-inch centers. The wire at the four edges is a No. 0 for extra strength; the nine legs are 3 1/2 in. high and are spaced to allow the entry of forked trucks from any side or diagonal. This eliminates difficult truck maneuvering and gives new flexibility of storage patterns, reducing problems arising from complicated aisle layouts. The open-mesh construction facilitates the strapping of underlapping loads; allows free circulation of air preventing the collection of moisture which occurs on flat surfaces; and the all-metal construction makes the pallets completely fireproof.

The Monroe Auto Equipment Co., Monroe, Mich., offers a pallet made of a new alloy—high-tensile steel—said to be 40% lighter than the pallet formerly made of hot-rolled steel. Notwithstanding the lighter weight, the new pallets are comparable in strength to the hot-rolled steel product. Tests have shown, the company reports, that they have load-bearing capacities, when tiered, of more than 100,000 lbs. A 48-in. by 48-in. by 4-in. high pallet weighs 82 lbs.

TRANSPARENT BAG-MAKER AVAILABLE

The "Roto" bag-making machine to make transparent bags from rolls of cellophane or any heat-sealable film, ("Flying Machines," MODERN PACKAGING July 1946, pp. 116-117) is available from Kono-Mead Equipment Co., Flushing, N. Y. With combination heat- and glue-sealed seams, bags may be single-walled or duplex, from 2 in. to 18 in. long, 1 1/2 in. to 9 in. wide.

PROTECTIVE COATINGS

Watson-Standard Co., Pittsburgh, Pa., announces a new series of protective coatings known as R Aluminum System as an alternate for white base and finish coatings, said to incorporate the latest technical advances. The lithographer, container manufacturer and metal fabricator should find these finishes of definite interest because of the excellent printing surface on the base coat and the attractiveness of the finish coat, according to the manufacturer. Paper converters will likewise find them suitable for producing brilliant, embossed, decorative packaging products.

65 million

ADULT AMERICAN WOMEN

Buy 3/4

OF ALL GOODS
SOLD AT RETAIL



To Sell Them...know how they buy!

When—by dint of vigorous and expensive advertising and selling—you *have* distribution—have told how good your product is—and have it *in the stores*—the job is still NOT done!

Because—as great retail organizations have demonstrated—and national surveys have proved—women make 62% to 75% of their buying decisions (decide *what brand* to buy) when they are *in the stores*!

There—at the point-of-sale (if yours is a packaged product)—the final and vital selling job is up to your *package*! There—the package that attracts their eyes, arouses their interest—and makes a better impression of quality *within*

than competing packages—WINS SALES.

LET RITCHIE WORK WITH YOU to develop a better package at low unit cost. One that will instantly identify, fully protect and conveniently dispense your product—practical—production-planned—easy to fill or pack—to handle, to stack and display—but *above all* designed for eye-appeal, for quality impression—A PACKAGE THAT SELLS!



Never
the Power

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W.C. **Ritchie**
and COMPANY
8849 Baltimore Avenue • Chicago 17

- ★ SET-UP PAPER BOXES
- ★ FIBRE CANS
- ★ TRANSPARENT PACKAGES

Underestimate
of the Package!

NEW YORK • DETROIT • LOS ANGELES • ST. LOUIS • MINNEAPOLIS • MILWAUKEE • ATLANTA • NEW ORLEANS • DENVER • PORTLAND • SEATTLE • MIAMI

Plants and People



Dr. F. L. Minnear

Department of Continental Can Co.

Warner Bros. Co., Bridgeport, Conn., maker of paper boxes, announces that a new three-story building is now under construction, covering 90,000 sq. ft. and housing new automatic machinery. The building will be devoted exclusively to the manufacture of folding boxes.

Harry B. Taylor, a salesman for International Printing Ink for 26 years, has retired from active duties but will continue with IPI on a consultation basis.

Pneumatic Scale Corp., Ltd., Quincy, Mass., manufacturers of packaging and bottling machinery, announces plans for the construction of a one-story extension providing an additional 33,500 sq. ft.

Nelson M. Snyder has been named manager of trade advertising of the sales promotion department of Owens-Illinois Glass Co., succeeding Robert L. Lowrie.

Package Machinery Co. has announced the following personnel changes: Fred Taylor of the Cleveland office resigns and is replaced by Bob Strehlau of the Springfield office. Joe Kelley of the New York office will be transferred to Springfield.

Harry Siegel has been named sales promotion manager for Ever Ready Label Corp., New York.

Controlling interest in Louis DeJonge & Co., paper manufacturers, has been purchased by Louis Schulman, president of Louis Schulman Co., Inc., New York.

Triangle Package Machinery Co., Chicago, has purchased the assets and business of Rapp Mfg. Co., Los Angeles, its former West Coast associate, and will manufacture Triangle Elec-Tri-Pak weighers and fillers for the West Coast.

McLaurin-Jones Co., Brookfield, Mass., manufacturers of gummed and coated papers, has appointed E. Lee Turley as vice-president in charge of sales.

Central States Paper & Bag Co., manufacturers of boxes, bags, containers and treated papers, have moved their New York headquarters to 342 Madison Ave.

Dr. F. L. Minnear has assumed charge of development and research in the field of plastics for Shellmar Products Corp., Mount Vernon, Ohio. Dr. Minnear comes to Shellmar after three years as manager of the non-metallic container research

Packaging Supply Services, 301 Klein St., Kaukauna, Wis., is a new concern specializing in the manufacture and sale of all requirements of the cheese packaging industry. L. H. Jones, formerly a specialist in Pliofilm, heads the firm.

Container Testing Laboratories, Inc., has opened a Los Angeles office, managed by Lee M. Smith.

The merger of American Viscose Corp. and Sylvania Industrial Corp., cellophane manufacturers, became fully effective Sept. 12. The company henceforth will be known as the Sylvania Division of American Viscose Corp.



Capt. Norman R. Stiles

Stephen Morse Ryder

J. W. Moreton, Jr., has been named sales manager of the MRM Co., N. Y., makers of vacuum bottle filling machines.

Modern Containers Co., manufacturers of bagmaking and printing equipment and flexible packages, have moved to 3220 E. Olympic Blvd., Los Angeles.

Sun Tube Corp., Hillside, N. J., manufacturers of collapsible tubes, has announced the incorporation of Sun Tube Corp. of Canada, Ltd., with executive offices at Ottawa. J. G. Stenhouse and J. Willis Pushman, are respectively president and executive vice-president of the corporation. Tubos de Estano, Mexico City, has become an associate.

The H. P. Smith Paper Co., Chicago, has named L. M. Burgess technical service engineer.

The Riegel Paper Corp., New York, plans a new glassine and greaseproof paper machine to be in production within 15 months in its Milford, N. J., mill.

In a move to expand polystyrene production to over 80 million pounds by 1947, Monsanto Chemical Co., St. Louis, Mo., has announced the purchase of the \$9,550,000 government-owned Texas City, Texas, styrene plant which Monsanto built and operated during the war.

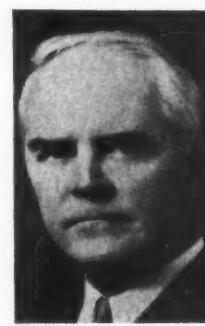
General Box Co. of Chicago has built a

completely equipped laboratory for testing and designing shipping containers. The Cincinnati laboratory is being disbanded while the company's Brooklyn laboratory is being expanded.

A. C. Thompson, formerly with Associated Merchandising Corp., has acquired an interest in W. L. Stensgaard & Associates, Inc., Chicago, merchandising display specialists. Mr. Thompson will be executive vice-president and general manager of the eastern division.

Carl B. Kriener has been promoted to vice-president and sales manager of the Continental Box Co., Texas, a subsidiary of General Box Co., Chicago.

The Goodyear Tire & Rubber Co. announces the following reassignments in the Pliofilm packaging sales department: Frazer E. Wilson has been named frozen food specialist and R. H. Kilgore will handle Akron territory sales.



R. B. Robertson

At a recent board of directors meeting of The Champion Paper and Fibre Co., the following were elected to office: Reuben B. Robertson, president, Reuben B. Robertson, Jr., executive vice-president and Dwight J. Thompson, director and vice-president.

Plans for a research laboratory to be erected in 1947 at Rothschild, Wis. for pilot studies in pulp, paper and chemical products have been announced by Marathon Corp.

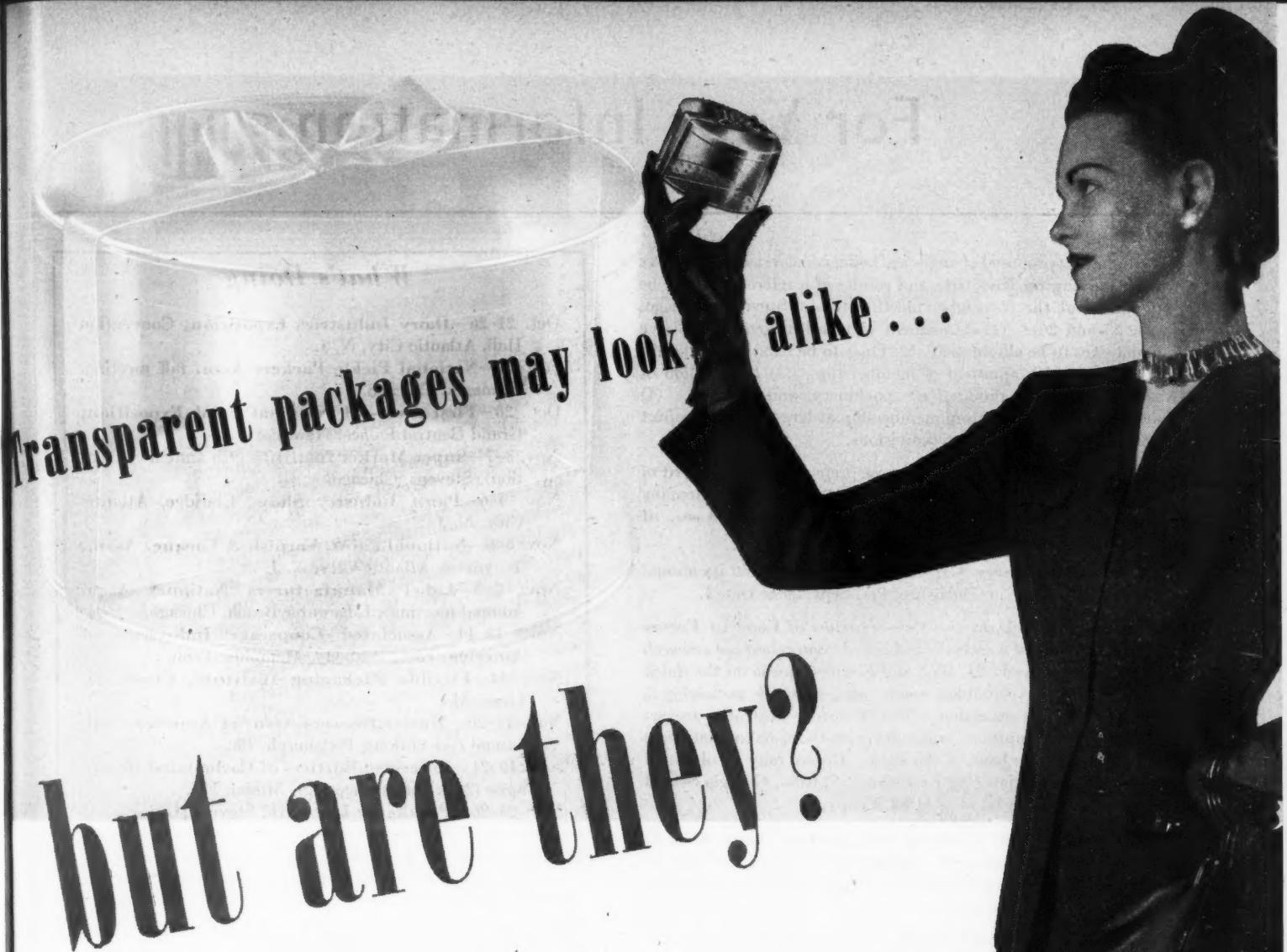
Harvey P. Thelen, sales manager of Continental Can Co.'s steel container division, died on August 24 in New York after a short illness.

Stephen Morse Ryder, president of Chisholm-Ryder Co., Niagara Falls, N. Y., and a well-known figure in the packaging and food processing industry, died at the age of 88 on August 31.

V. H. Wilshire, president of Specialty Paper Co., Dayton, Ohio, died suddenly on August 28 while vacationing.

Arthur W. Lindholm, vice-president of Pneumatic Scale Corp., Ltd., died after a period of illness on August 29.

John Stein, one of the founders of Oneida Paper Products, Inc., N. Y., died September 12.



ETHOCEL SHEETING is different because . . .

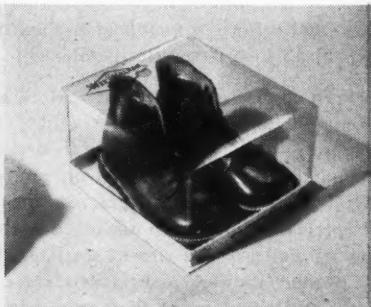
it's made from Dow Ethylcellulose. That's why this sheeting is so serviceable . . . so light, long lasting . . . why it will stand up during shipment . . . take constant handling and shelf wear in its stride. Ethocel Sheeting is colorless, tasteless, and tasteless . . . so it's safe in contact with food, as well as innumerable other products ranging from flowers to face powder. Packages made from this plastic are sparklingly clear . . .

bright . . . brilliant in finish . . . and they stay that way. And Dow Ethylcellulose gives Ethocel Sheeting important fabrication advantages that mean manufacturing economy . . . it's easily heat formed . . . permits deep clear draws.

Ethocel Sheeting is different from other plastic packaging materials . . . because it possesses all those important properties vital to successful performance in packaging.

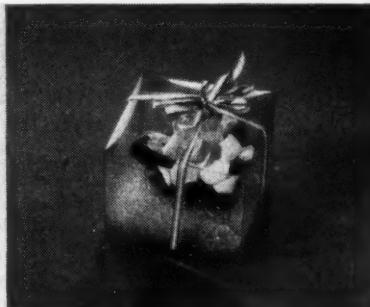


Park Square Mfg. Co.
Transparent containers of
Ethocel Sheeting, stationery is
attractive—sells itself.



Moran Shoe Co.

Greater display prominence
for any product is achieved
with Ethocel Sheeting.



Ethocel Sheeting containers
give flowers extra glamour that
increases their attractiveness.



PLASTICS

STYRON • ETHOCEL

DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN
Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis • Houston • San Francisco

For Your Information

The following proposed changes are being considered by members of the **Packaging Institute** and results of a referendum will be announced at the November meeting (Hotel Stevens, Chicago, Nov. 25 and 26): (1) Assessment of members over and above annual dues to be eliminated. (2) Dues to be fixed by the Board of Directors with approval of membership. (3) Elimination of such divisions as production, machinery and supplies. (4) Directors to be chosen from membership at large without respect to membership in above listed divisions.

C. J. Carney, Jr., of the merchandise preparation department of **Montgomery Ward & Co.** was selected as the new managing director of the **Industrial Packaging Engineers Assn. of America** at a recent meeting of the Illinois chapter.

Packaging Machinery Mfrs. Institute, Inc., held its annual meeting at Shawnee-on-Delaware, Pa., Sept. 29 to Oct. 1.

"Literature Search on the Preservation of Food by Freezing" is the name of a recently published comprehensive research project prepared by B. H. Weil and Frances Sterne on the quick freezing of fruits, vegetables, meats, etc., in which packaging is given considerable attention. The literature abstracts are arranged in order of authors' surnames with the usual alphabetical subject index in the back of the book. Copies may be obtained from The State Engineering Experiment Station, Georgia School of Technology, Atlanta, Ga., at \$4 a copy.

At a meeting of the **National Dehydrators Assn.** held in Chicago recently, **George E. Siebel** was elected president to succeed **Graham Adams**, who resigned as president and member of the executive committee.

Polytechnic Institute of Brooklyn is again offering a graduate course of 30 lectures on pulp and paper technology open to qualified men from industry. The course is under the direction of **Robert S. Aries**, **Northwestern Wood Utilization Council**. Among the lecturers are the following: **R. G. MacDonald**, **TAPPI**, **V. P. Edwardes**, **International Paper Co.**, **Arthur Pollack**, **West Virginia Pulp and Paper Co.**, **J. D. Malcolmson**, **Robert Gair Co., Inc.**, **C. E. Libby**, **New York State of Forestry**, **R. M. Cobb**, **Lowe Paper Co.**, **Allan Schenck**, **Riegel Paper Co.**

Five complete research reports on sales management, warehouse operations, revised commodity handling costs, packaging and wholesalers' advertising and sales promotion plans, were presented at the annual convention of the **National Wholesale Druggists' Assn.** at the Hotel Traymore, Atlantic City, Sept. 23 to 26.

Final arrangements have been made to hold the **American Management Assn.'s 1947 Packaging Exposition and Conference in Philadelphia, April 8 to 11**. The date and place had been uncertain since it was learned some time ago that the Atlantic City Convention Hall, previously engaged, would not be available. Scene of the meeting will be the Exhibition and Convention Hall of the Philadelphia Commercial Museum, which offers 120,000 sq. ft. of exhibit space with an adjoining meeting room having a capacity of 1,200 to 1,400 persons. The show space is considerably larger than that used last year at Atlantic City. The Philadelphia convention bureau has promised to set aside adequate hotel and transportation facilities for all who wish to attend. The conference program will cover the first three days, and the Exposition will remain open through the 11th.

What's Doing

- Oct. 21-26—**Dairy Industries Exposition**, Convention Hall, Atlantic City, N. J.
- Oct. 25—**National Pickle Packers Assn.** fall meeting, Bismarck, Chicago.
- Oct. 28—**First Over-All National Food Exposition**, Grand Central Palace, New York.
- Nov. 3-7—**Super Market Institute** (9th annual convention), Stevens, Chicago.
- Nov. 4-6—**Paint Industry Show**, Claridge, Atlantic City, N. J.
- Nov. 6-8—**National Paint, Varnish & Lacquer Assn.**, Traymore, Atlantic City, N. J.
- Nov. 7-8—**Label Manufacturers National Assn.** (annual meeting), Edgewater Beach, Chicago.
- Nov. 13-14—**Associated Cooperage Industries of America, Inc.**, Peabody, Memphis, Tenn.
- Nov. 14—**Flexible Packaging Institute**, Chase, St. Louis, Mo.
- Nov. 17-20—**Master Brewers Assn. of America** (39th annual convention), Pittsburgh, Pa.
- Nov. 19-21—**American Bottlers of Carbonated Beverages** (28th annual meeting), Miami, Fla.
- Nov. 25-26—**Packaging Institute**, Stevens, Chicago.

Harris Seybold Co.'s new film on lithography scheduled to run 25 minutes explains the basic differences between lithography, letterpress and gravure.

"Protective Strip Coatings of Eastman Cellulose Acetate Butyrate" is the title of a new leaflet issued by **Tennessee Eastman Corp.** Preparation and application of the material to metal parts is described in detail and sources of equipment and ingredients as well as prices per lb. are listed. Complimentary copies may be obtained from the company in Kingsport, Tenn.

Acme Steel Co. has set up in the **Museum of Science and Industry**, Chicago, an exhibit to demonstrate steel strapping techniques and the importance of such techniques in protection of products in shipment.

Types of packaging machinery now being produced, styles of folding cartons handled by these machines and the wide variety of commodities that are being automatically packaged are discussed in a new illustrated 20-page booklet written by **J. D. Malcolmson**, **Robert Gair Co., Inc.**

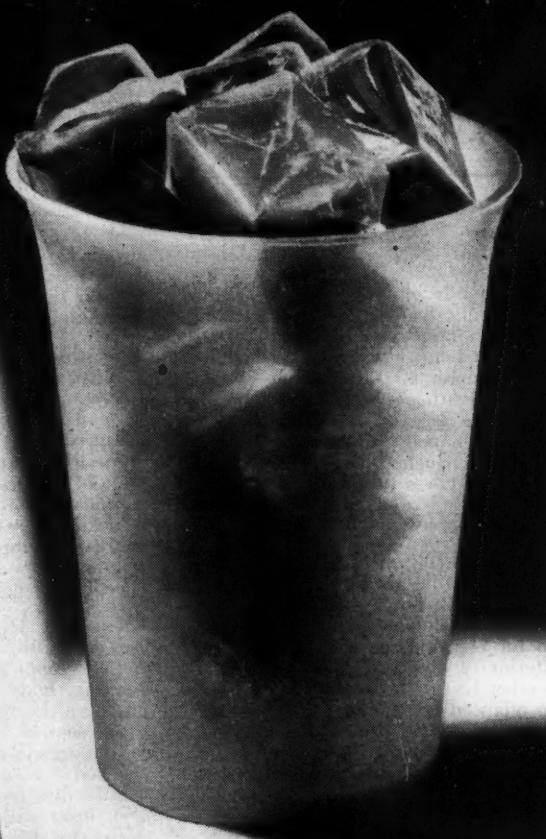
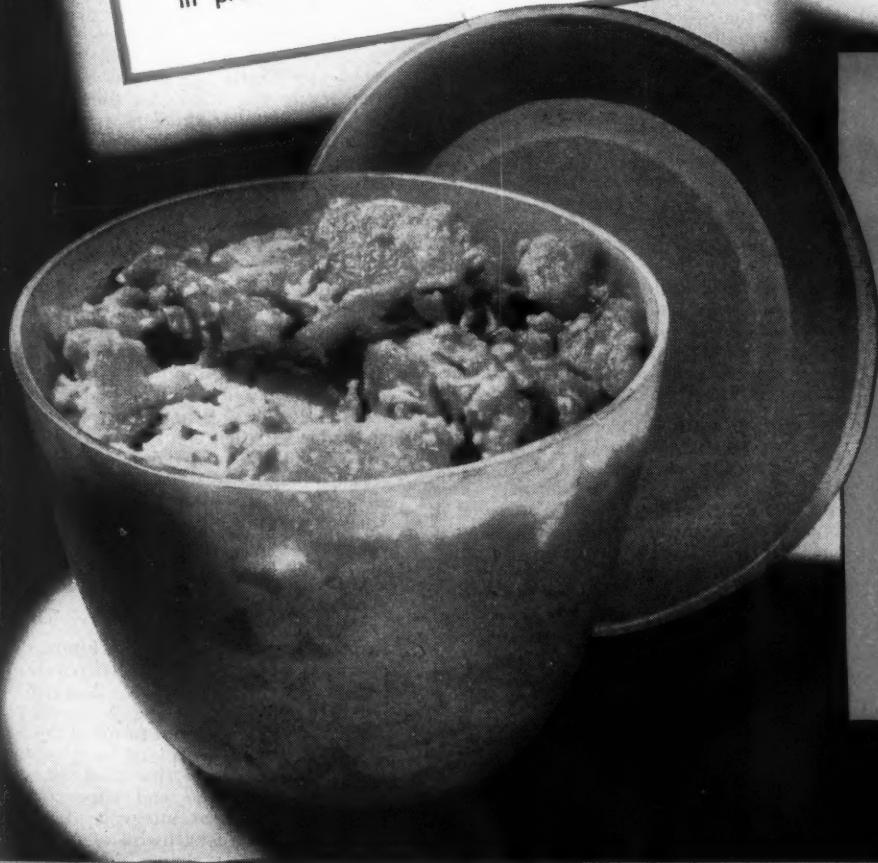
An Accounting Manual being offered by the **Society of the Plastics Industry** is the result of an extensive research program covering financial statements, classification of ledger accounts, sales analyses, manufacturing costs, general expense, specific accounts, forms and procedures, etc. Complimentary copies will be distributed to society members and additional copies may be purchased at \$2.50 per copy to members, \$5 to non-members.

The American Assn. of Horticultural Scientists, through its committee on maintaining market quality, is building a complete bibliography covering all phases of fresh produce marketing, which will include reference material on prepackaging and refrigeration. This was disclosed at a meeting in the Bismarck Hotel, Chicago, last month which was attended by representatives of university agricultural experiment stations, the U. S. Dept. of Agriculture, produce growers' associations, chain and independent grocery firms, and suppliers of food processing machinery and packaging materials. Chairman of the meeting was **R. H. Carrolus**, Department of Horticulture, Michigan State College.

TUPPER

**DOUBLE DUTY and
PACKAGING BEAUTY**

Here is the final touch of perfection in package appeal for re-use — Tupper tumblers and covered refrigerator dishes of Tupper postwar, flexible Poly-T plastic. Fill them with candy, salad or any other food item. Watch sales soar as customers discover that they impart no flavor, are feather light, breakproof, tasteless and non-toxic, and that they suggest at a glance a score of uses around home. Tupper 8-ounce tumblers are made in frosted crystal and frosted pastel shades of lime, lemon, orange, raspberry and plum. The refrigerator dishes, in frosted crystal, with covers, hold about a pint and are designed to stack in the deep freeze or refrigerator. Write now. They're in production.



TUPPER PLASTICS, INC., Farnumsville, Mass.

NEW YORK CITY OFFICE: 225 FIFTH AVE. • CAN. ADDRESS: HINDAVID, REG., 916 BLEURY ST., MONTREAL, P. Q.

U. S. patent digest

edited by H. A. Levey

This digest includes each month the more important patents which are of interest to those who are concerned with packaging materials. Copies of patents are available from the U. S. Patent Office, Washington, at 25 cents each in currency, money order or certified check; postage stamps are not accepted.

Bag Closure Means and Method, R. J. Williams and H. C. Davis (to Bemis Bros. Bag Co., St. Louis, Mo.). U. S. 2,404,337, July 16. A closure for the mouth of a bag or the like comprising a band of adhesive along one margin of the mouth, a removable protective strip covering said band, a cover tape covered on one side with adhesive and attached thereby to the other margin of said mouth and extending beyond the same, and a removable V-shaped protective strip having one side attached to the extending portion of said cover tape by the adhesive on the over tape and having its other side freely movable.

Bottle Cap, T. R. Smith (to The Maytag Company, Newton, Iowa). U. S. 2,404,410, July 23. A bottle cap providing a closure for a bottle and having a threaded portion for engagement with threads on the exterior of the bottle, comprising a cap member having a centrally depressed portion adapted to extend into the neck of the bottle, and equipped with sealing ring which pivots about its inner end and provides an effective seal whenever cap is on bottle.

Cover Holding Band for Pies and the Like, W. Ehrlich, Fox River, Wis. U. S. 2,404,776, July 30. A cover-holding band for pies and the like comprising a strip of material having its ends joined, a series of longitudinal slits in the strip adjacent the middle line thereof and at regular intervals therearound, and a shorter transverse slit adjacent each longitudinal slit, and connecting into the middle portion thereof, when opened they are in gripping reception of parts of the periphery of a pie supporting plate and co-operating cover thereof.

Sanitary Applicator, F. Satz & M. Berns (one-half of Satz to S. Sontag, all of Los Angeles, Calif.). U. S. 2,404,815, July 30. A device comprising an elongated case; a guide element supported in the case in spaced relation to the sides thereof; a plurality of cover section rockably mounted on the case between said sides of the case and the guide element, for movement laterally of the case to open and close an end thereof, the cover sections and guide element having co-acting means to maintain said section in aligned relationship.

Box, R. B. Meller, Oakland, Calif. U. S. 2,404,916, July 30. A box having a self-locking corner comprising a bottom section, a side wall section and an end wall section, a wing extending from said end wall section adjacent said side wall section and separated by a cut from said side wall sections, said side wall section having a cut in the longitudinal edge thereof in a direction transverse to a circle having its center at the corner of said bottom section to form a locking tab in the plane of said side wall section.

Cigarette Case, J. M. Beverage & C. J. Cowan (to Mavco, Inc., a corporation of New York). U. S. 2,405,009, July 30. A cigarette case consisting solely of two substantially similar trays having ends and side walls and made of molded ma-

terial, cooperative hinge means at one end of each tray, cooperative catch means at the other end of each tray, each tray, having side walls extending from one end to the other with an inside spacing equal to cigarette length.

Receptacle Dispensing Carton, W. E. Amberg (to Universal Paper Products Co., Chicago, Ill.). U. S. 2,405,107, Aug. 6. A device for dispensing nested receptacles comprising a shipping tube made of substantially flexible material and adapted to hold a plurality of stacks of nested receptacles, and a shrinking band or collar of flexible sheet material around an end of said tube comprising a bridge member extending between opposite sides of said tube intermediately of said stacks.

Garment Holder, P. Gilliland, Los Angeles, Calif. U. S. 2,405,124, Aug. 6. A case comprising an elongated upwardly opening body section, a cover section having a rim removably telescoped on the body section, inwardly directed flanges on the upper edge and at the ends only of the body section, similarly positioned inwardly directed flanges in the cover section, inset with respect to the free edges of the rim, flexible panel-like carriers each having a length greater than the distance between the respective flanges, and means for frictionally holding sections together.

Liquid Filling Machine, R. E. J. Nordquist (to American Can Co., New York, N. Y.). U. S. 2,405,232, Aug. 6. A machine for filling liquids into containers of varying size comprising, liquid filling means, a horizontal table disposed below said filling means for receiving empty containers to be filled, a rotatable disc supported by said table for receiving containers therefrom, lifter elements supported by said table and bodily rotatable with said disc, and cooperating endless conveyors disposed in vertically spaced substantially horizontal planes above said table for advancing said containers in spaced relation on said table.

Control Mechanism for Dispensing Apparatus, H. E. Marvel (to S. F. Bowser & Co., Inc., Fort Wayne, Ind.). U. S. 2,405,264, Aug. 6. In a liquid dispensing apparatus comprising a nozzle, a casing, a flow supplying means and a control device for said flow supplying means in said casing, a nozzle support comprising a plunger mounted for reciprocating movement to different positions with respect to said casing, connections for transmitting movement from said plunger to said control device and means to prevent supporting said nozzle on said plunger except in a predetermined position thereof.

Basket Handle, D. A. Larking (to The Hinde & Dauch Co., Sandusky, Ohio). U. S. 2,405,310, Aug. 6. A basket having side walls, each comprising inner and outer panels connected by a top edge fold each side wall having an angle slot consisting of a top portion extending along said fold and a portion extending downwardly in one of said panels from one end of said top portion, and a handle having flat portions adjacent its ends of a width to substantially fit in the top portions of said slots, and flat heads of greater width

than said top portions of the slots, each providing shoulders for engagement with the interior of a top edge fold at opposite ends of the top portion of a slot.

Dispensing Container for Roll Paper, E. Smith (to Appleford Paper Products, Ltd., Hamilton, Ontario, Canada). U. S. 2,405,459, Aug. 6. A container for a roll of paper formed of a single blank folded upon itself to form a lower portion having front, rear, bottom and end walls, said end walls being formed from flaps on the front, rear and bottom walls, the flaps on the front and rear walls being interlocked together, said container including a cover portion formed from said blank having a front wall folded upon itself a plurality of times forming three plies, the innermost ply of which projects below the other two and defines a cutting edge against which paper withdrawn from the roll may be severed.

Box, E. R. Stivers (to Stapling Machines Co., a corporation of Delaware). U. S. 2,405,463, Aug. 6. In a box having four sides and an interior cleat frame at each end of the box, means to close the ends and divide the box lengthwise comprising: an unattached end section at each end of the box, contacting the cleat frame and held thereby against outward displacement, and having v-shaped notches cut or formed in the top and bottom edges of the section, and a pair of unattached dividers, each triangular in cross section, extending lengthwise the box intermediate its sides and resting in the notches.

Grease Dispenser, F. Wilkes, Wilkinsburg, Pa. Aug. 6. U. S. 2,405,481. A dispensing device for grease and the like, comprising a chamber having a discharge nozzle of a length not substantially less than the length of a grease gun barrel to place over the nozzle for filling, a piston in the chamber, means for supplying fluid pressure to the rear side of the piston to move it toward the nozzle and thereby effect discharge of grease from chamber.

Container for Frozen Foods, R. Guyer & R. J. Jennessy (to Waldorf Paper Products Co., St. Paul, Minn.). U. S. 2,405,499, Aug. 6. A container comprising a series of four panels foldably connected together, one of said panels forming a carton bottom wall, end walls foldably connected along opposite edges thereof, flaps on opposed edges of said end walls, each end wall and its flaps forming a U-shaped wall when erected on said bottom wall, said end walls and flap being of similar height, a separate reinforcement sleeve arranged to fit closely about said U-shaped walls, two of the remaining panels of said series being arranged to lie outwardly of said sleeve to form outer side walls, the remaining panel forming a top cover for the container.

Bottle Carrier, W. D. Plummer (to Owens-Illinois Glass Co., a corporation of Ohio). U. S. 2,405,517, Aug. 6. A bottle carrier comprising a rectangular sheet of flexible material forming the body of a carrier, and strips of such material sewed to one face of the sheet by seams extending along the end edges of said sheet, and seams at intervals along said strips extending lengthwise of said sheet and dividing the strips into individual pockets, and a handle attached to said face substantially midway between the ends thereof, so when carrier is lifted by the handle the sheet is doubled downward and the pockets brought to upright position in rows on the outer faces of the carrier body.



HERE'S WHY PLASTICS-MINDED PACKAGE DESIGNERS START with DUREZ

Over and above all others is one quality which the package designer requires in a plastic material. This is versatility. Because the phenolics are the most versatile of all plastics, he usually starts here when looking for the plastic that fits his job.

Non-bleeding, for example, is a "must" property when it comes to closures—one reason why more closures have been molded of Durez phenolics than of any other plastic material.

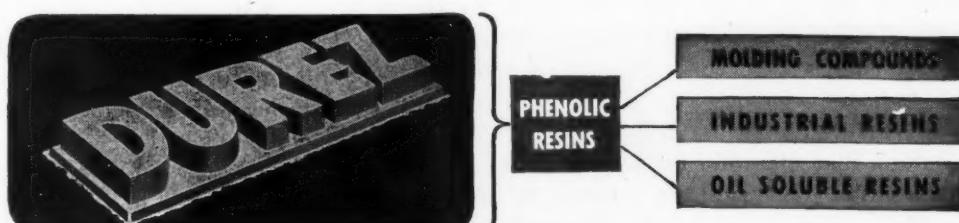
Then there is diversity of finishes—an important property for decorative containers. Again Durez phenolics meet the test. Various effects are easily achieved.

Excellent moldability, of course, is highly desirable too. Here again Durez "fills the bill" by being readily formable to unusual design.

In addition, the more than 300 Durez phenolic molding compounds possess, in varying degrees, such properties as

heat resistance, impact strength, dielectric strength, and resistance to acids and alkalies—all invaluable to the imaginative designer.

Perhaps you have a plastic material problem. If so, the benefits which Durez' twenty-six years experience as specialists in the production of the phenolics can bring you and your custom molder, are available for the asking. Durez Plastics & Chemicals, Inc., 2510 Walck Rd., N. Tonawanda, N. Y.



PLASTICS THAT FIT THE JOB

Films for produce

(Continued from page 143) six holes would show less shrinkage than another one having four vent holes. The reason for this inconsistency was probably due to the fact that some of the holes are blocked by plant tissue which necessarily results in a reduction of the passage of water vapor. However, these discrepancies are unimportant in comparison to the magnitude of the shrinkage losses. It was found that each vent hole caused a shrinkage loss of only 0.1 to 0.2% during the entire storage period. It is obvious that losses of such small magnitude are insignificant and the conclusion is justified that adequate ventilation of packages has no appreciable effect on the rate of shrinkage and wilting of the product.

Some readers may find it difficult to reconcile this conclusion with the statement made earlier that small vent holes permit adequate diffusion of oxygen gas to maintain normal respiration. The reason for this apparent discrepancy is due to the fact that oxygen diffusion rates are expressed in terms of ml. of the gas while shrinkage losses are based on the weight of water in the liquid state. A recalculation of the data shows that when the actual quantities involved are expressed as mols of oxygen and water the diffusion rates fall within the same order of magnitude.

Condensation of water in small droplets on the inside of films used for prepackaging occurs whenever films of low WVP are used. Whether or not this condensation is objectionable is a debatable question. Fogging may indicate freshness to the consumer, but it also reduces visibility thereby impairing one of the chief advantages.

Taking the view that it would be desirable to prevent fogging, the question is whether there are means of accomplishing this. In an earlier report (6) the writer suggested that fogging of moistureproof films could be avoided by thoroughly cooling the packages to a temperature near the freezing point and thereafter raising the temperature slightly during subsequent handling, avoiding always a second drop in temperature. Actual tests with prepackaged vegetables showed that under commercial conditions this method of avoiding fogging is not effective. It is successful only as long as the temperature of the package continues to rise. If kept for a few hours at constant temperature, fogging occurs. The reason for this unexpected behavior lies in the slight difference in temperature across the film. This difference is maintained partly by evaporation from the outer surface of the film and partly by the heat given off during respiration of the product. This temperature difference needs to be only a fraction of a degree to cause condensation if the relative humidity within the container is 95% or higher. It appears, therefore, that other means need to be found to avoid condensation. The simplest solution is, of course, to use films which are not moistureproof. As pointed out earlier this is satisfactory except for some fruits and leafy vegetables which are to be held

under conditions favorable to rapid wilting. It is also possible that manufacturers of transparent films will find a method whereby a surface-active substance is applied to the inside of the film so that the surface tension of the water droplets is lowered to such an extent that the water spreads evenly over the entire surface.

Another question that has been raised in connection with the use of moistureproof films concerns the effect of an atmosphere saturated with water vapor on the incidence of storage diseases. It has been feared that conditions of high humidity favor the growth of many bacteria and fungi and cause an early breakdown of the product. Observations made during one season failed to show a noticeable increase in occurrence of storage diseases when vegetables were prepackaged in moistureproof films. Nevertheless, these observations are by no means conclusive and it would be desirable to have a systematic study made of the effect of prepackaging on the incidence of storage diseases. In the meantime, the choice between moistureproof films and films of high WVP should depend primarily on whether or not fogging and decreased visibility are more objectionable than a relatively high rate of transpiration and wilting.

The primary object of using transparent films for prepackaging fruits and vegetables is to have a packaging material which makes the product visible to the consumer and reduces excessive wilting and shrinkage losses. Most transparent films now being used meet these requirements reasonably well. It must be admitted, however, that films which provide maximum visibility are not very effective in reducing moisture losses and vice versa. It is hoped that eventually transparent films will be developed which satisfy both.

Experimental data have been presented which show that all of the films now used for prepackaging possess a low permeability to oxygen. If seals are made airtight, the supply of oxygen is insufficient to maintain a normal course of respiration of the packaged produce and rapid breakdown results. As a rule, films which have a low permeability to water vapor are also highly impermeable to oxygen. In order to avoid possible breakdown from anaerobic respiration it is recommended that some degree of ventilation be provided for all packaged produce. This can be accomplished by punching small holes into the film, by using staples instead of seals to close bags, by lap-sealing, and otherwise making imperfect seals.

There is no convincing evidence which would indicate that transparent films used as wrapping material have beneficial or harmful effects on the quality of fruits and vegetables except for those already mentioned. Most of the claims made for the retention of original flavor and food value in prepackaged produce can be traced to improved handling practices. Experiments are now under way to determine effect upon eating quality and food value by chopping vegetables prior to packaging.

1. Platenius, Hans, *Plant Physiology* 18, No. 4, 671-864 (October 1943).
2. Davis, Donald W., *MODERN PACKAGING* 19, No. 9, 145-149 (May 1946).
3. Platenius, Hans, *Plant Physiology* 17, No. 2, 179-197 (April 1942).
4. Thornton, Norwood C., *Contrib. Boyce-Thompson Inst.* 5, No. 3, 371-402 (September 1933).
5. Southwick, Charles A., Jr., *MODERN PACKAGING* 19, No. 11, 137-139 (July 1946).
6. Rasmussen, M. P., and Platenius, H., *MODERN PACKAGING* 19, No. 11, 98-104 (July 1946).



HOW STRETCHING A CARDBOARD BOX SOLVED A GLASSMAKING PROBLEM

During the war, when carton board for packing glass containers was even scarcer than it is now, a glassmaker's ability to supply his customers with bottles frequently depended upon his skill in utilizing board to the best advantage. So when one of Armstrong's customers requested greatly increased production on a vital container, it was Armstrong's Package Engineering Department that was consulted, rather than the plant engineers or chemists.

Packing two dozen containers to the box instead of one offered one way to stretch available board. A two-tier box wouldn't handle well on the customer's production line—but a one-tier, two-dozen package was eventually engineered that saved enough board to enable the customer to receive 100,000 extra cases of bottles a year!

Simple and obvious? Perhaps. But it exemplified the resourcefulness displayed by the trained technicians in Armstrong's Service Departments in meeting and solving glass and closure problems that are bound to occur in the present period of shortages.

Skilled package engineering is only one of the many specialized services available to Armstrong customers. Hundreds of specially trained research men, traffic men, purchasing agents, package designers, and other specialists are constantly on the job to make sure you get the best in glass and closure service.

For full information about Armstrong's Glass or Closures, call your Armstrong representative, or write direct to Armstrong Cork Co., Glass and Closure Div., 5910 Prince Street, Lancaster, Pa.



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**YOUR PRODUCT WILL
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They buy your product when it's packaged so they can see it. That's why products go places in LUSTEROID, the crystal-clear plastic vials and tubes.

For all their light weight, these containers are strong, rigid, unbreakable—ideal for product protection and perfect display. LUSTEROID saves you money, too, by cutting handling and shipping costs. Their printability eliminates labeling expense.

All colors to choose from—clear or opaque. Sizes from 1/4" to 1 1/4" in diameter—lengths up to 6". Cork slip-on or screw-cap closures. Write for details.



Yams in packages

(Continued from page 107) many yams as they wished, under the packaging program. They were not particularly interested. They preferred to continue under the usual method of bulk, unidentified shipments, and they offered to handle large shipments that way.

However, when Mr. Dezauche revealed his consumer advertising program in Chicago newspapers, to feature the company's brand and its packaging system, it was a different story. Both executives immediately wanted to make a big-order, exclusive deal.

What this Louisiana company has done toward packaging is evidence of the tremendous future of packaging in bulk food products. The Dezauche concern in the future will sell its entire production, so far as its one-third "top" of the crop is concerned, through identified packaging. It seems logical also that other sweet potato producers who feature a quality line will eventually come to packaging their products. That development in turn will point the way for identification and individual trade-marking and packaging for Irish potatoes, onions, dried beans, cabbage, citrus (most of which still is unidentified) and other bulk, low-priced fresh foods.

CREDITS: 5-lb. "Lenonet" mesh bag and 50-lb. multiwall bag by Bemis Bro. Bag Co., St. Louis.

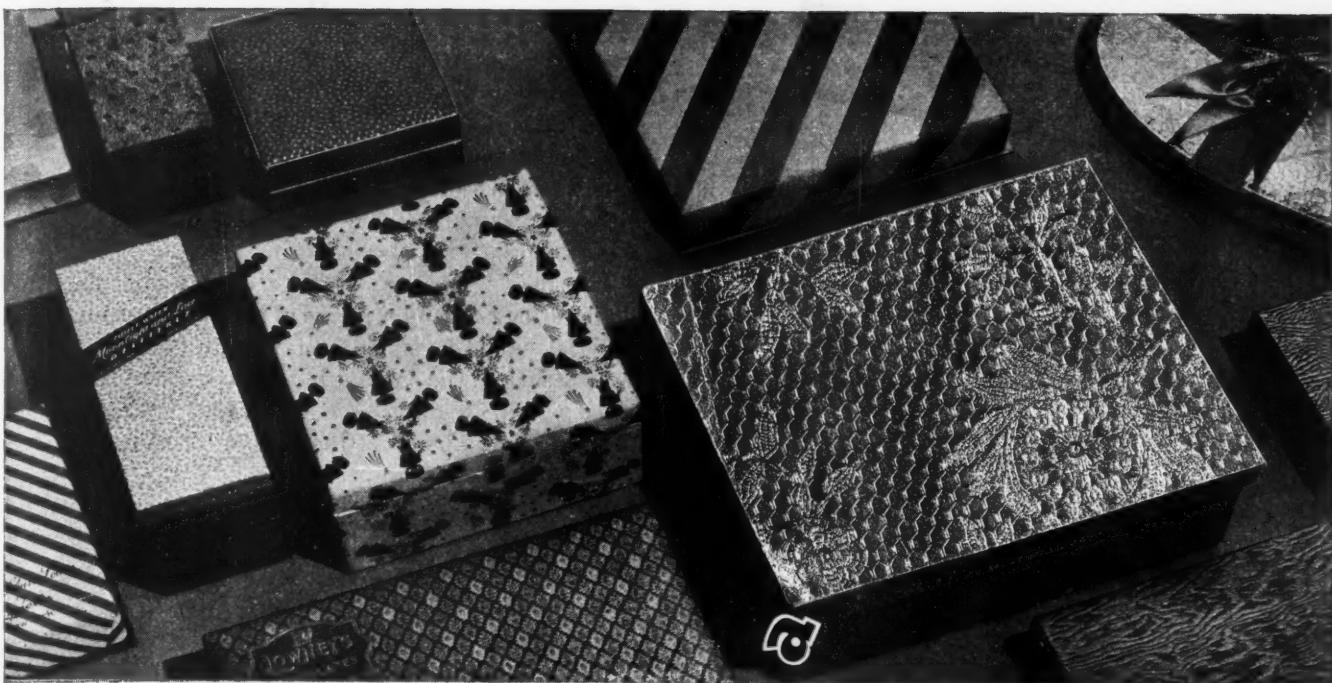
Filling weight control

(Continued from page 122) trol maintained. Compared with the previous non-chart day, about 5% more cased goods were turned out in an equal time with the same labor and raw material. The limit lines were extended for the next day's manufacture (8-11). Although in control, most points were below the center line, indicating a trend, in effect a warning sign, to watch carefully for loss of control.

It is not proper to credit the control chart solely with the savings demonstrated in these and similar cases. The attention that centers on this sort of innovation produces increased alertness to production details and other side effects *per se* conducive to better operation. In general there is a temptation to overemphasize these savings; the procedure has numerous other advantages aside from them.

The control chart is the key that opens the treasury of elaborate and ponderous statistical methods for practical every day usage. The mathematics have been reduced to the simple steps of adding, dividing and multiplying. This easy-to-understand and easy-to-use new tool has many advantages. It offers a sound basis for scale adjustments, a means of maintaining uniform filling operations and an insight to improved scale performance and design.

The control chart method should be considered by everyone concerned with package-filling operations.



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... It will enhance its value and double your sales . . . at little more than the cost of flat papers. KUPFER embossed papers are realistically reproduced to simulate lace, leather, cloth, metal and foil in all types of stock, colors, gold and silver. A distinctive note is attained with KUPFER trade-marked papers where your own trade mark, or a new one, is incorporated in your package design.

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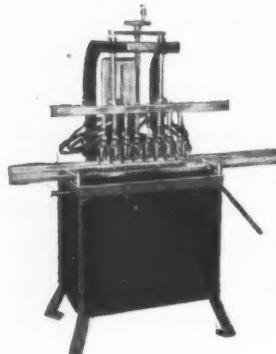
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Serve and sell

(Continued from page 104) to accommodate the largest piece to be dipped, but a good practice is to use a tank which holds only as much material as is required for use in an average 8-hr. work period. Here again, the coating loses transparency and becomes brittle the longer it is kept up to working temperature.

This does not mean, however, that a tank must be empty after every 8-hr. period of heat. But enough new material should be added from time to time during the period to equal the amount in the tank at the beginning of the period. A guide, therefore, when installing a tank might be the estimate of the amount of material to be used in an average 8-hr. period.

The various methods used for dipping parts will vary, depending on the size and the shape of the parts, the number of parts to be dipped and whether the parts are to be coated completely or partially.

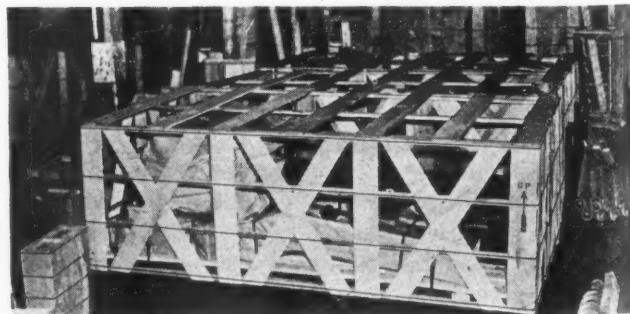
If a part is to be coated only for physical protection against breaking and nicking, it may be desirable to dip only the vulnerable portion, such as the cutting teeth of a hob or cutter. If protection against rust and corrosion is also desired, the part should be completely covered.

The double-dip method is favored for maximum protection from both shocks and rust. It is accomplished by dipping the part a little over halfway into the liquid, and permitting it to solidify; then dipping the other half to a depth sufficient to over-lap the first half by at least $\frac{1}{2}$ in. When properly done, this method will effect a perfect seal against moisture and fumes.

A quicker method is to suspend the part on a cord or a wire and dip it completely in one dip. This affords good physical protection, but it does not provide as good a seal as the former method. Therefore, this method should not be used on parts which are subjected to high humidity or shipped across salt water. This type of dip is greatly improved through the use of a non-wicking cord or soft copper wire for suspending the part.

It must be remembered that ethyl-cellulose will protect against rust only if the part is free from rust-producing substance before dipping. Therefore, another important feature is the *pre-dip* in an acid neutralizer.

In addition to the ethyl-cellulose coating, all Barber-



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Each SHOWBOX is custom-designed by packaging experts to achieve maximum protection while showing your product to its maximum advantage.



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57% of the consumers who purchase merchandise do so on impulse. Transparent, rigid, plastic SHOWBOXES do a far better job of creating that on-the-spot, impulse buying.

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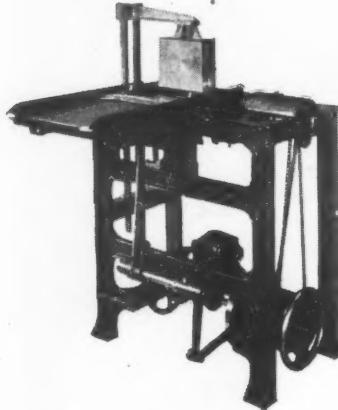


HOW MUCH DOES IT COST YOU EACH MONTH FOR CARTON PACKAGING?

Have you checked up recently on the cost of your present hand method of carton set-up and closure? Many plants have found this expense almost double the pre-war cost.

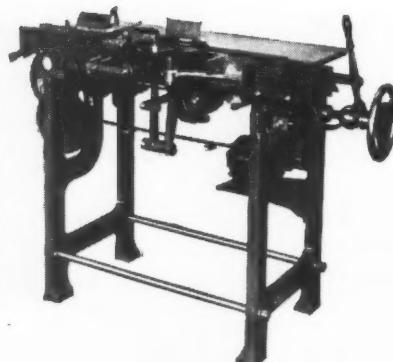
In many other plants PETERS economical packaging machines are showing substantial economies every day in time and labor, with increased production and greater overall profits.

Why not send us samples of the various sizes of cartons you are now using. We will gladly make recommendations for your specific requirements.



This PETERS JUNIOR CARTON FORMING & LINING MACHINE sets up 35-40 cartons per minute, requiring only one operator. After the cartons are set up, they drop onto a conveyor where they are carried to be filled. Machine can be made adjustable to handle several size cartons.

This PETERS JUNIOR CARTON FOLDING & CLOSING MACHINE closes 35-40 cartons per minute, requiring no operator. After cartons are filled, they enter machine on conveyor and are automatically closed. Can also be made to handle several different size cartons.



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Colman small tool shipments are wrapped in oilproof paper and housed in either a fibreboard telescope box of the metal-edge type or a sturdy tin container. This is double assurance that they will arrive safely.

Each fibreboard box is oilproof, clearly marked and adapted to ease in handling. The boxes are treated with a lustrous resinous coating to make them greaseproof and assure legibility of the printed surface. These boxes are durable and strong. They are delivered flat, stored and then made up to the desired sizes as needed.

To facilitate tool-crib storage and encourage retention of the Barber-Colman container, the package is carefully labeled on two outer side panels with exact identification and specifications of the tools within.

As an added safety factor, all fibreboard metal-edge boxes have been designed as full-telescope boxes with tops which fit inside the bottoms. This helps to avoid having the bottom fall out when removing from shelf.

Patented extra strong tin boxes are used where handling conditions are most severe and where fine ground hobs demand long storage.

CREDITS: Metal-edge fibreboard boxes by National Metal Edge Box Co., Philadelphia. Tin boxes by the J. L. Clark Manufacturing Co., Rockford, Ill. Ethyl-cellulose compound by the Siebert Varnish Co., Detroit, Mich. Dipping tank by Progressive Systems, Inc., Chicago. Greaseproof paper by Graham Paper Co., St. Louis.

Plastic dips

(Continued from page 145) material to deform without breaking.

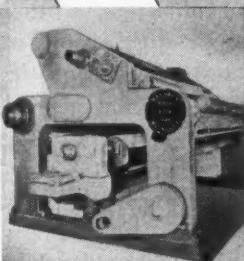
From the 112 companies and individuals contacted for the short-range study by letters from the Office of the Quartermaster General, through the advisory panel of the Quartermaster projects at the Brooklyn Polytechnic Institute, and by publicity in the trade journals, 21 companies submitted a total of 68 samples. Of these, only 12 were considered suitable for testing for immediate substitution, and 50 appeared of interest as compounding or modifying agents in later formulations. The other six would have required considerable modification of technique of application, such as the use of solvents or the use of higher dipping temperatures (with the consequent volatilization of moisture in the carton stock) or pre-drying of cartons.

After evaluation of the 12 samples submitted, it was found that none was satisfactory for immediate use in the dipping program. Only three materials looked promising for resistance to blocking at 140 deg. F. Of these, two had very poor low-temperature characteristics and the other required an excessively high temperature for application and was not a satisfactory barrier for water vapor. Two materials showed slightly better low-temperature flexibility than the paraffin microcrystalline wax but possessed poor high-temperature behavior.

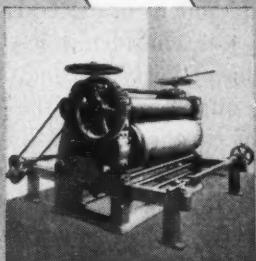
With V-J Day, the demand for combat rations dropped sharply and the importance of a sound basis for research could again be emphasized without a sacrifice for the sake of speed. In the previous work,

Part of the Picture of Paper Products

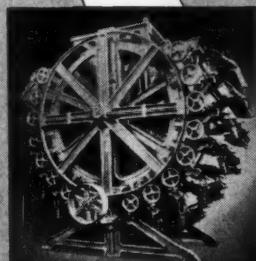
WALDRON MACHINES



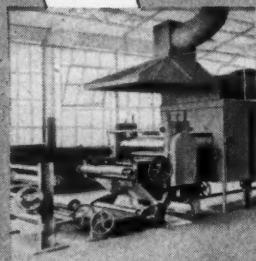
COATING



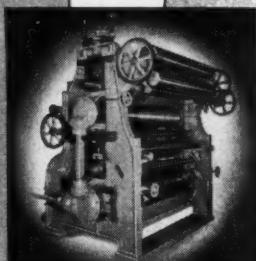
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WHAT NEXT WILL BE MADE FROM PAPER? That same question was asked when the first paper napkin appeared. It was asked when paper draperies for our living rooms were produced; wall board for building construction; moisture and heat resisting cartons and containers; gleaming table tops made from plastics treated paper.

Just as the famous WALDRON Converting Machines made these and thousands of other products possible in the past, they will continue to transform

raw paper stock into newer and better products for the future. Long experience has equipped WALDRON designers and builders to know the trend, to plan the machines for the new processes and products now in the development stage. Witness the recently developed new methods for coating, laminating and impregnating—the direct result of newly designed WALDRON machines. **WHAT NEXT?** Watch WALDRON—or better still consult us on your problems or plans.

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the lack of information on fundamental properties and the lack of methods for determining them were keenly felt. In consultation with representatives of the QMC, it was decided that the first step in initiating the type of sound, long-range program that the QMC desired was the development of satisfactory methods for the quantitative determination of important properties.

The development of tests for the following properties was considered as being of primary importance:

1. Blocking
2. Low-temperature extensibility at rapid rates of stress application
3. Low-temperature tensile strength at rapid rates of stress application
4. Water-vapor transmission under a range of conditions of temperature and humidity
5. Adhesion of coating to paper and paperboard

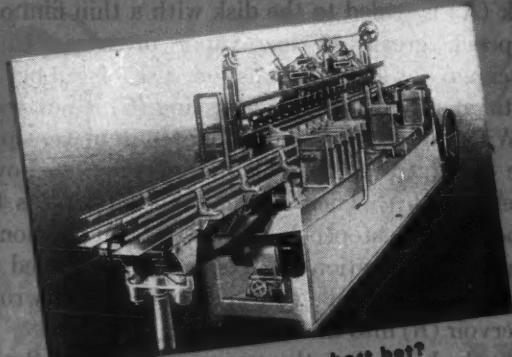
The development of methods of evaluation for other properties was considered less important because of the existence of fairly satisfactory tests, because of the secondary importance of the properties for general applications (although possibly very important for specific applications), or because these properties were already being investigated in connection with other programs (such as insect control).

In order to insure the continuation of the development of methods for several of these primary properties, The Institute of Paper Chemistry was requested to initiate a new program. This program would be devoted to the development of sound methods for evaluation of those fundamental properties of plastic materials considered important for any type of packaging application when used with paper or paperboard. The development of such methods and their use by various laboratories will permit the accumulation of basic data which can be used in the development of new materials and which can be applied to specific applications as the need arises.

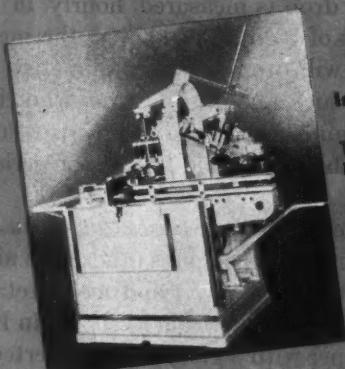
At the present time, work is in progress on refinements of methods already developed for measurement of water-vapor permeability and of low-temperature extensibility at high rates of stress application. An investigation has also been started of the effects of time, temperature, and pressure on blocking characteristics in order to study the possibilities of devising short-time tests to indicate blocking behavior over a longer period of time and for a range of pressures.

Pi standard test methods

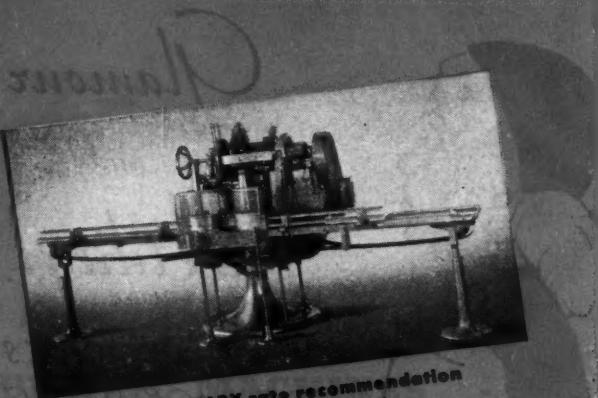
(Continued from page 152) manometer tube to prevent particles of the drying agent from falling into the manometer. Insert a predetermined weight of drying agent into the circular opening of disk (K) so that the volume of the apparatus is substantially 2.0 cc. Then place filter paper (P) between the test specimens and metal disk (K) to define the area of the test specimen and provide a porous medium for the permeating gas to travel to the openings in the metal disk (D) and on into the



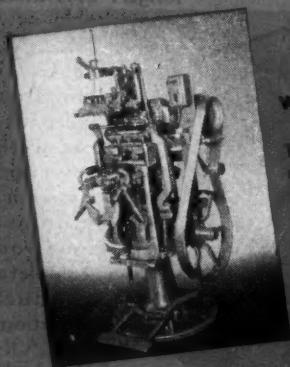
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manometer. The part of the test specimen (*F*) overlapping filter paper (*P*) and in direct contact with metal disk (*K*) is sealed to the disk with a thin film of heavy stopcock grease of low vapor pressure. In testing specimen for air transmission, use of rubber gasket, metal disk (*E*) and retaining ring (*G*) is not necessary.

With the test specimen mounted in place, tip the entire apparatus so that all the mercury runs over into reservoir (*R*). Then evacuate the apparatus through tube (*B*) with stopcock (*S*) in the open position. After complete evacuation the stopcock (*S*) is closed and the apparatus is tipped again so that the mercury runs from reservoir (*R*) into the manometer.

At the beginning, the mercury level in all three stems of the manometer will be approximately the same. As the gas permeates through the test specimen the mercury column in the center capillary stem of the manometer drops. This drop is measured hourly in millimeters. With films of high permeability, the mercury in the center stem will drop several millimeters in an hour's time. With such films the test need not be extended for more than a few hours. Films with exceptionally low permeabilities should be run for periods of 24 to 72 hours.

B. Measuring Permeability of Gases Other than Air—To measure the transmission of gases other than air, the rubber gasket (*C*), metal disk (*E*) and metal retaining ring (*G*) should be placed in position as shown in Fig. 1. A small rubber stopper with a glass tube is inserted into each of the two holes in disk (*E*); one serving as the gas inlet and the other as the gas outlet. The inlet tube is attached to the cylinder of gas to be tested while the outlet tube can either vent the gas to the atmosphere or it can be attached in series to the inlet tube of the second gas transmission unit. A continuous stream of gas is thus passed over the test specimen for the duration of the test.

It has been shown that the moisture content of gases markedly affects their rate of transmission through some film materials. This factor can be controlled by drying the gas to be tested before it is passed through the apparatus.

7. Calculations

Gas transmission measurements are recorded as the cubic centimeters of gas transmitted at a specific temperature and relative humidity per 100 sq. in. of surface per 24 hrs. corrected to standard conditions of temperature and pressure. Such a figure is expressed:

$$\frac{P}{t} \times V \times \frac{273}{T} \times \frac{100}{A} \times \frac{24}{760} = \text{cc. of gas transmitted at 73 deg. F. per 100 sq. in. per 24 hrs. under standard conditions of temperature and pressure}$$

P = the absolute pressure inside the apparatus at the time *t*, measured in mm.

V = void space in apparatus measured in cubic centimeters.

T = temperature in degrees absolute (C. + 273).

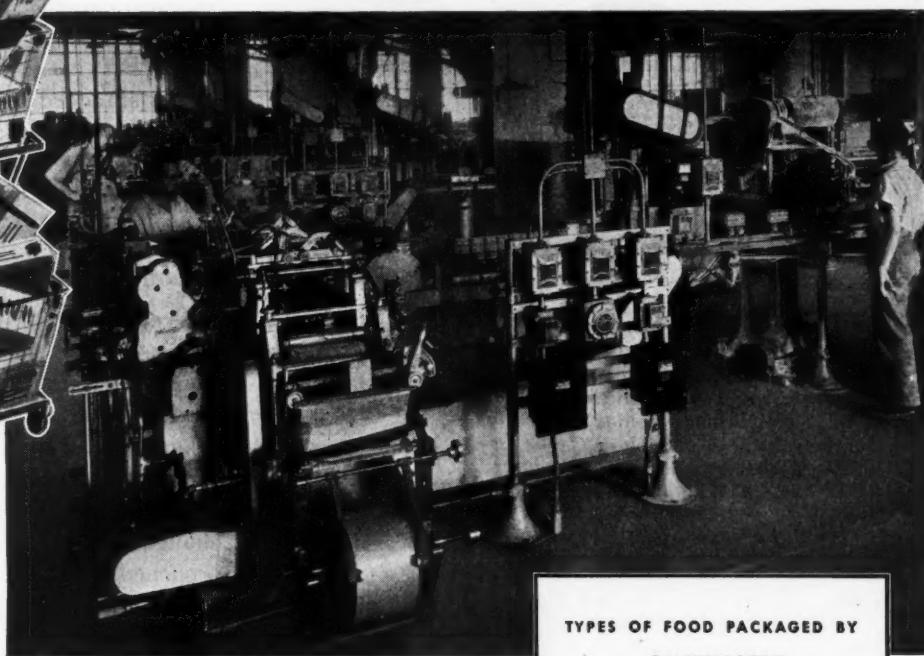
A = surface area of test specimen, i.e., area of filter



She needs a basket many times as large...

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*Photo used through courtesy Penick & Ford, Ltd., Inc., Brooklyn, N. Y., producers of MY-T-FINE puddings.

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1 million	15-400 Black Molded Caps
100,000	15-415 Pink Molded Caps
100,000	15-415 White Molded Caps with Wells-Brown Solvent Liner
100,000	18-410 Green Molded Caps
1 million	20-410 Black Molded Caps
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100	4 oz. Flask Sprinkler	24 turn
150	4 oz. I. S. Oblong Sprinkler	24 turn
500	6 oz. Masculine Sprinkler	24 turn

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paper in sq. in.

t = duration of test in hours.

The value of V has been established at 2.0 cc. The value of A is 2.2 sq. in. (for a 4.25-cm. filter paper). The standard temperature T recommended is 23 deg. C.

Substituting these values into the above equation, the following simplified working equation is obtained:

$$\frac{P}{t} \times 2.65 = \text{cc. of gas transmitted at a temp. of } 23 \text{ deg. C. per 100 sq. in. per 24 hrs. corrected to S.T.P.}$$

8. Precision and Reproducibility

This method should give results that are reproducible to within plus or minus 10%. Deviations greater than this should indicate that either the test specimens lack uniformity or that abnormal conditions, such as a leak in the apparatus, arose during the running of the test.

9. Report

The standard procedure for reporting gas transmission values is as follows:

The rate is reported as the cc. of gas transmitted at 73 deg. F. per 100 sq. in. per 24 hrs. corrected to standard conditions of temperature and pressure.

10. Interpretation of Results

Occasionally test specimens contain materials, such as plasticizers which have appreciable vapor pressure. Such materials will vaporize into the apparatus and depress the mercury in the manometer. This may be mistaken for gas transmission through the test specimen, but can be distinguished from gas transmission by the fact that the pressure will reach a constant, the rate of change of pressure decreasing as the value is approached. It is therefore necessary to make readings of the manometer at intervals during the test and calculate the rate of manometer change for each interval. If the rate of change is constant, it is due to gas transmission through the test specimen, but if it is a decreasing rate of change, the change is due at least partly to vaporization of some volatile material from the film. In this case the test is continued until a constant rate is observed, due to gas transmission alone.

11. Remarks

Temperature has been found to have a direct influence on the permeability of gases through films. In view of this, and in order to make possible the correlation of gas transmission data obtained in various laboratories, it is suggested that this method be run under controlled conditions of both temperature and relative humidity. The TAPPI conditioning atmosphere of 50% relative humidity and 73 deg. F. (23 deg C.) is recommended as the ambient atmosphere for this test.

12. References

- Elder, L. W., MODERN PACKAGING 16, 60-71 (1943).
Shuman, A. C., Industrial & Engineering Chemistry 16, 58-60 (1944).

complete, *adj.* 1. No part lacking.
2. Perfectly equipped.—*Syn.*
Entire, total.

... as in Betner packaging service

The dictionary says those things, and more, about the word "complete."

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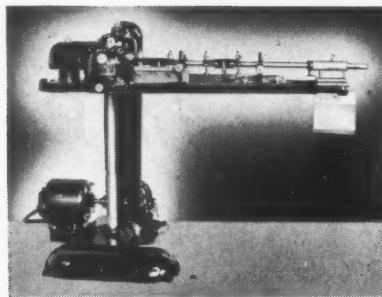
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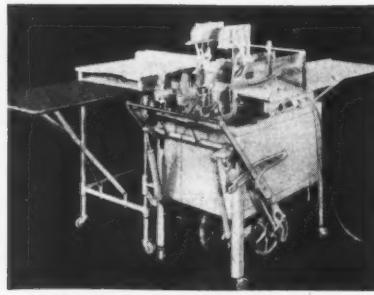
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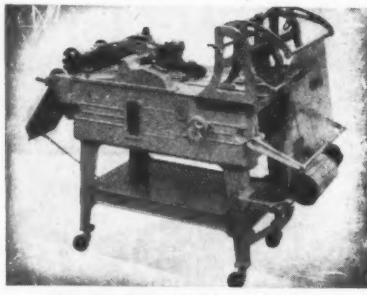
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The cellophane situation

The current acute cellophane shortage exemplifies the interdependence of unrelated industries on each other. The pulp shortage, of course, is basic, but scarcity of other ingredients is vital too.

Glycerine, for example, depends on soap production, which, as every housewife knows, is very low. Soap production depends on availability of fats and oils, dependent in turn on slaughtering of meat cattle. Black market operations cause scandalous waste of fats and oils. A tiny gleam of hope as far as glycerine is concerned is the prospect of increased imports of copra and cocoanut oil when and as that industry is rebuilt as a part of the Philippine rehabilitation.

New cellophane production facilities, expected to be delivering in September, have been delayed owing to strikes and production difficulties in the steel and building construction fields. Producers are reluctant to predict any date for fulfilling former hopes.

Cushioning materials

(Continued from page 150) for very rugged and lightweight items and may be as high as several inches in thickness for fragile and heavyweight items.

Cellulose wadding should be used in a manner so that it is not compressed more than one-half its normal thickness, in order to offer its greatest absorption properties. After that point of compression, the stresses imparted to the packaged item increase rapidly. When compressed to about 75% of its original thickness, the cushioning is usually permanently deformed.

In using corrugated board as cushioning material, if flexible, it can be loaded up to $1/4$ lb./sq. in.; if rigid, it can be loaded up to $1/2$ lb./per sq. in.

It has been found that added thicknesses of this material do not add to the bearing power. The exception occurs when the corrugated type is made into rolls, at which time the bearing power is directly proportional to the number of thicknesses used in the roll.

Although the amounts of material to be used as shown above are quite general, several tables have been drawn up to show the amounts or strengths of corrugated fibreboard and excelsior necessary for cushioning, depending upon the bursting strength of the material used and the weight of the load, respectively, but it is to be noted that no provisions are made for the ruggedness of the item.

Corrugated Paper Allowable Bearing Chart for Cells and Pads

(per lineal in. in blocks, per sq. in. in pads)

200# Mullen Test = 1 lb.

275# Mullen Test = 1.25 lb.

350# Mullen Test = 1.5 lb.

The above table indicates the proper Mullen test

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Soon, new sample books will be ready for distribution. In the meantime, send us your requirements. We guarantee prompt delivery of patterns we have in stock.

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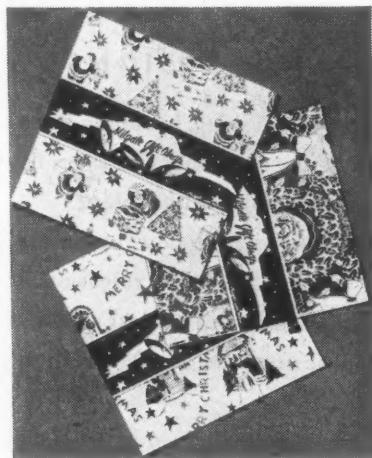
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corrugated fibreboard (single wall) to be selected for fabricating cells, trays or pads and is supposedly based on a factor of safety which allows for the hazards of wartime distribution. When greater loading is required than allowed by the table, wood blocking and bracing must be used.

Requirements for Excelsior Cushioning

	lb.	lb.	lb.	lb.	lb.	lb.
Load/sq. in.	Up to 1	1 1/4	1 1/2	2	2 1/2	Over 2 1/2
Thickness of excelsior	2	2 1/4	2 1/2	3	3 1/2	4
Wt. of excelsior/cu. ft.	3	3 1/4	3 1/2	4	4 1/2	5

When excelsior is used as cushioning in correlation with the above table, its thickness and density are determined by the load per square inch of bearing area. The table indicates the various thicknesses and the weight per cubic foot of excelsior to be used for different load conditions. The load per square inch must be determined for each face of the item or inner container bearing on the excelsior. This is found by dividing the weight of the item, or the gross weight of the inner container, by the number of square inches in each bearing surface.

(5) *Corrosiveness of cushioning materials*—Another factor of prime importance which limits the use of certain cushioning materials is based on the corrosive properties of the material. Some cushioning material, because of the dirt, acid, water or other chemicals or materials which are contained within its body, has the power to deteriorate metallic surfaces upon contact.

Where it is not practical to use a material which is chemically neutral to cushion an item, the cushion should be prevented from contacting bare metal surfaces by means of a certified neutral material, such as grade A greaseproof paper, which is so placed as to separate the cushioning from the article at all times.

Inasmuch as all determinations for the corrosiveness of cushion materials are expressed in terms of hydrogen ion concentration or pH, it may be well to discuss this term.

A pH concentration of 7.0 is considered neutral. By neutral is meant that the material is neither acidic (acid) nor basic (alkaline). For practical purposes it has been determined that the safe pH range is from 6.5 to 7.5; therefore, materials falling into that category are considered neutral. Materials with a pH value below 6.5 are acid to the extent that they will cause the corrosion of practically all metals. Materials with a pH value above 7.5 are basic to a degree that they will affect such metals as copper and aluminum.

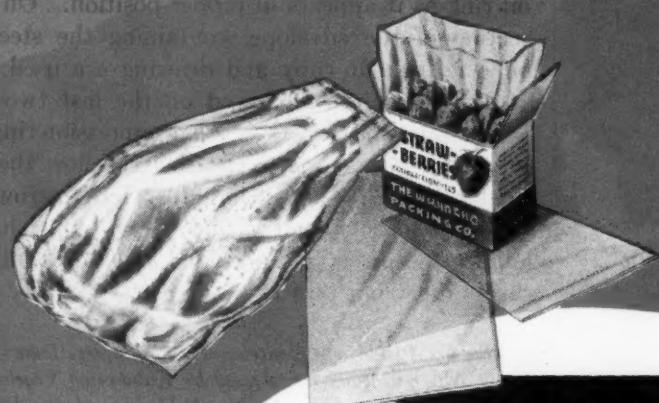
For clarification, it is well to note that the pH value of a material is an independent factor and has no relationship with the shock-absorbing qualities of the same material. It is possible for two materials to have exactly the same physical properties but entirely different pH values, and vice versa.

(The second and concluding part of this article, discussing the advantages, disadvantages and applications of more than 20 specific types of cushioning materials, will appear in next month's issue.)

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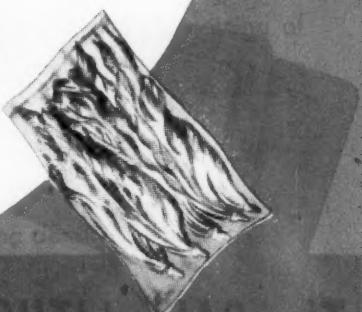
WEST-TURK POULTRY BAGS

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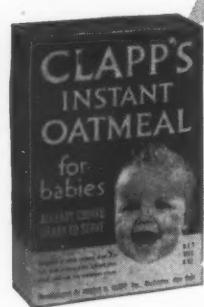
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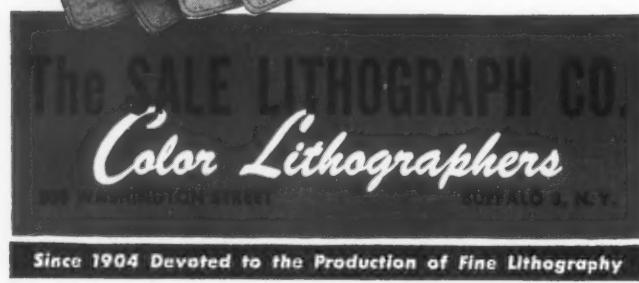


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188 MODERN PACKAGING

Divided packets

(Continued from page 123) mechanic who installs the rings. The statement, "This package contains a complete set of rings for one piston," immediately simplifies the mechanic's problem. As the folded envelope is opened out, the next copy that meets the eye consists of brief rules for improving piston ring performance.

Further unfolding of the oblong envelope brings the user to the first pocket. This is marked, "First install in groove below pin," and carries summary instructions, followed by a drawing which indicates the snap oil ring as it appears in proper position. On the next section of the envelope, containing the steel section oil ring, similar copy and drawing are used, and the same treatment is followed on the last two pockets, which contain the steel section compression ring and the top compression ring. The sketch below the instructions on each pocket includes a colored arrow marked "install first," "install second," etc. A mechanic who follows the directions provided cannot possibly get a ring in the wrong position.

CREDITS: *Piston ring envelopes by Cupples-Hesse Corp., St. Louis, Mo. Vegetable parchment by Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich. Folding cartons, Gereke-Allen Carlton Co., St. Louis.*

Label papers short

Acute shortages of label papers and the greatly increased demand for labels particularly for food processing—more than double pre-war levels—have placed the label manufacturing industry in an unprecedentedly difficult position in meeting 1946 requirements.

Chief difficulty: production of label papers has not kept pace with the greatly increased demand. All label manufacturers are on strict allocation of label paper, based on past requirements, while 1946 demands are far above former years. Bond, book and other non-label papers are being used to meet acute needs, resulting in slower press production and, in some cases, inferior quality. Some papers being used do not lend themselves to varnishing. The varnish penetrates the softer surfaces with the result that the finished label does not have the usual slick, glossy appearance.

Another problem of label manufacturers is inability to replace worn equipment or to add new. Presses and other equipment were not available during the war, and since have been extremely difficult to procure. Shortages of casein and starch for coating papers are additional contributing factors to inadequate supply of label papers. Alleviating factors are: recent increase in ceiling prices on label papers which places them on a more equitable price basis with other types of papers and increased production facilities are being completed by label makers just as rapidly as raw materials and equipment become available.



"Wedding Ring" lipstick
courtesy of
Helena Rubinstein



... of Product and Package

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Penicillin IS JONES CARTONED

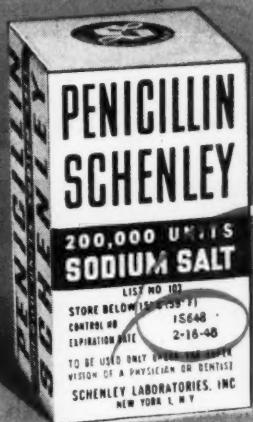
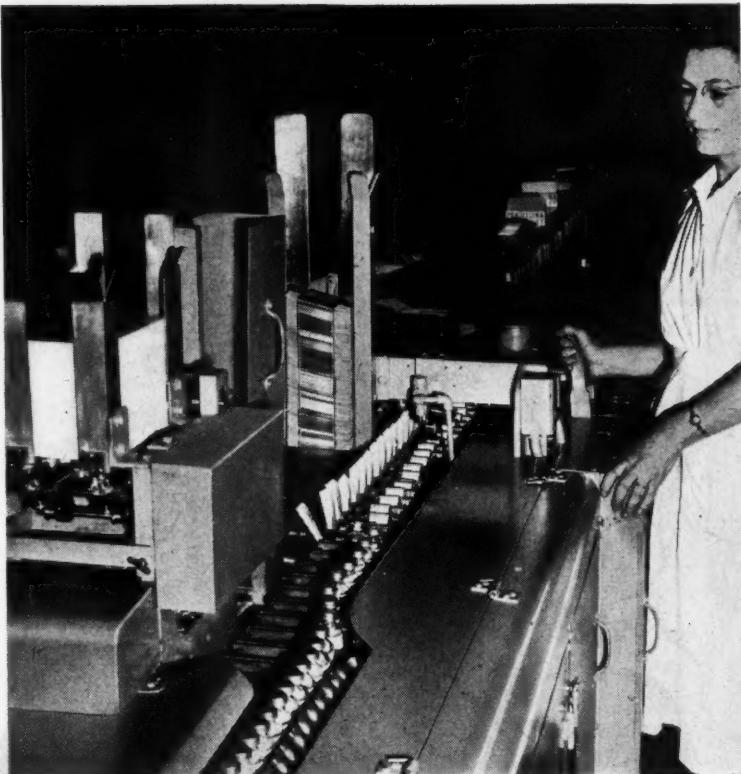
Jones Constant Motion
Cartoners selected by 10 of
the nation's leading penicillin
producers.

AT Schenley Laboratories, Inc., Lawrenceburg, Indiana, where efficiency in penicillin production is outstanding, a Jones Cartoner is performing standard cartoning operations with typical Jones superiority.

Vials of penicillin are loaded on the cartoner's plate chain conveyor and are gradually transferred to the bucket conveyor. The machine feeds, folds and inserts a leaflet underneath each bucket, without disturbing the load. It feeds a carton, and prints on it the control number and expiration date. The carton is opened—vial and leaflet gradually inserted—carton ends closed and tucked.

Machine cartons 120 or more packages per minute with ease. Empty or defective cartons are automatically prevented from passing through the machine. Simple and efficient, the Jones Constant Motion Cartoner assures gradual, gentle, yet positive handling of carton and load throughout each operation.

Hundreds of America's most famous products are Jones cartoned. Perhaps your product can also be cartoned better, faster, and at less cost by Jones. For complete information, write (enclosing a sample of your product) to R. A. Jones & Company, Inc., today.



Vital information accurately printed

Where control number, expiration date, etc., must be printed on cartons, Jones Cartoners again show their superiority:

Every character is printed completely and perfectly—no chance of misreading due to an imperfectly formed character.

Register is held exactly to the space provided.

Printing is attractive—maintains the appearance of the carton.

Extra typeholder provided — data is changed in a few seconds.

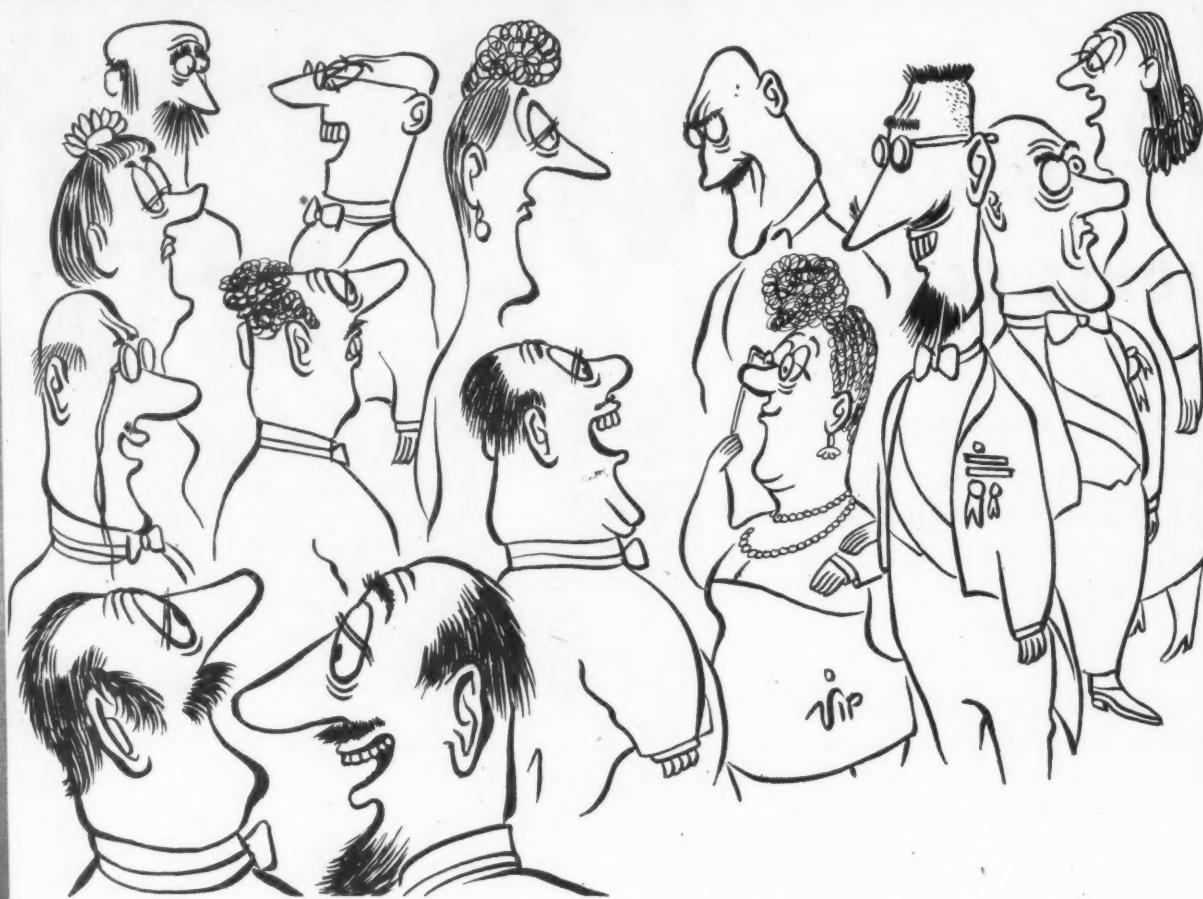
Standard cast type is used—eliminates expense of hardened steel type.

R. A. JONES & COMPANY, INC.

P. O. Box 485

CINCINNATI, OHIO

THE MAJORITY OF AMERICA'S CARTONED PRODUCTS ARE JONES CARTONED



"That reminds me, Swift makes all kinds of adhesives!"

Swift has glues for *all* uses. Available now . . . immediate delivery.

We have a resin or rubber base adhesive for almost every gluing operation, and can make prompt shipment from one of our 10 manufacturing plants, located from coast to coast.

Some are extremely fast-setting . . . others hold their tack a long time. Some are flexi-

ble . . . others dry hard. Some are for paper or cardboard . . . others are for tougher jobs, like joining wood, metal, acetate, and so forth.

They machine beautifully, and are highly efficient for almost every gluing operation.

Send for a trial shipment of the resin or rubber base adhesives we've developed for *your* job.

SWIFT & COMPANY

GLUE DEPARTMENT

CHICAGO 9, ILLINOIS

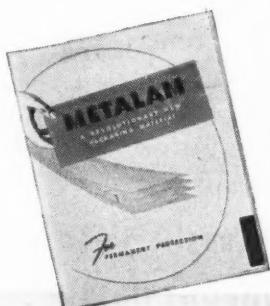
Factories or sales offices: Harrison, N. J. • E. Cambridge, Mass.
 Chicago, Ill. • Kansas City, Kan. • So. San Francisco, Calif. • No. Portland, Ore.
 Ft. Worth, Texas • So. St. Joseph, Mo. • National Stock Yards, Ill.
 Cleveland, Ohio • Atlanta, Ga. • Los Angeles, Calif.
 So. St. Paul, Minn. • Denver, Colo. • Sioux City, Iowa • Omaha, Nebr.
 In Canada: Swift Canadian Co., Limited, Toronto, Ont.

This practical cardboard container, only 6" x 5" x $\frac{1}{4}$ ", contains 12 "METALAM" unit packages. Occupies small space, quick and easy to sell, and carries complete directions for use. Also packaged in smaller size containing 2 unit packages.



METAL WALLS Guard THIS "KILLER"

ANOTHER "METALAM" UNIT PACKAGE



"HOW-TO-DO-IT" BOOK

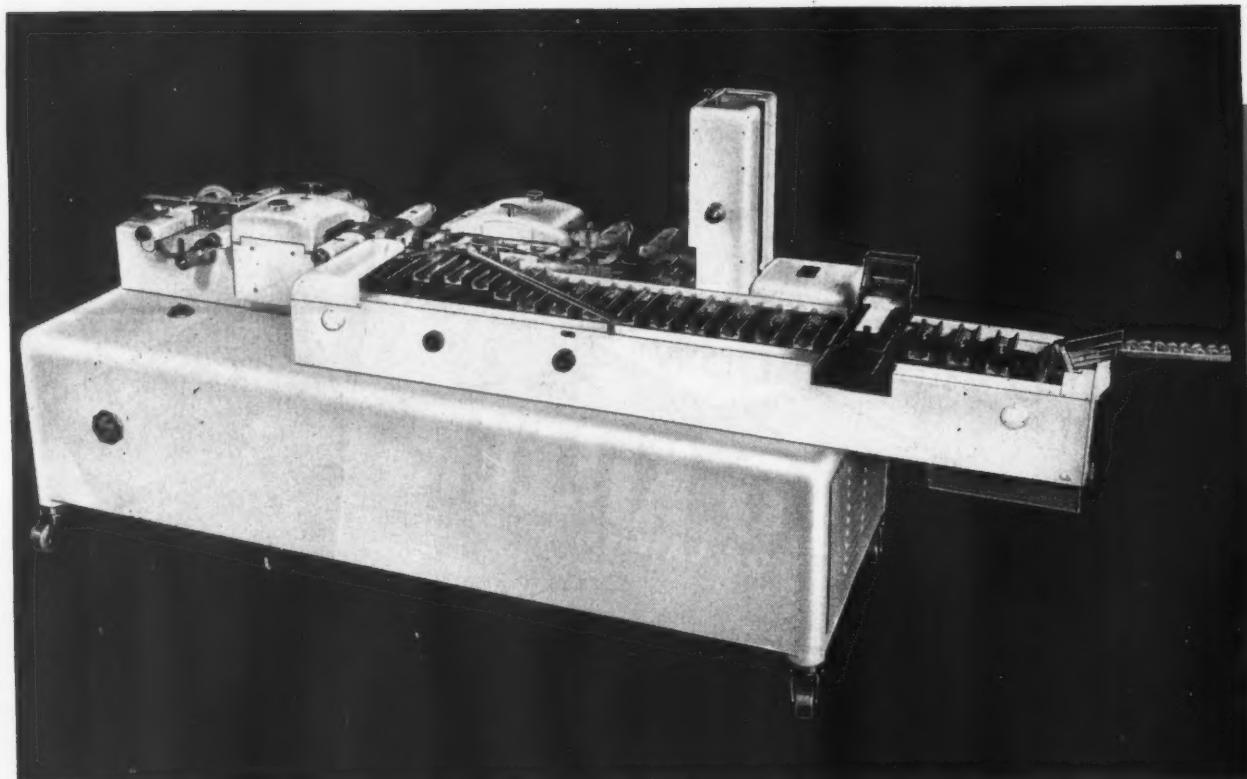
Write today for this illustrated booklet which fully describes the packaging magic of "METALAM" and offers suggestions on how it may solve your packaging problems.

Dow's Weed Killer gets complete and lasting protection in this Dobeckmun "METALAM" package of laminated aluminum foil and acetate film. High-speed, automatic equipment forms, loads and seals each individual package. They'll take rough handling . . . and they're easy to use. The film provides an attractive surface for multicolor printing.

"METALAM" is the practical unit package for hygroscopic powders, tablets, pharmaceuticals and similar materials. Ask us for suggestions for packaging your product in safe "METALAM". The Dobeckmun Company, Box 6417, Cleveland 1, Ohio. Branches in Boston, Chicago, Cincinnati, Los Angeles, New York, Philadelphia, San Francisco and Seattle. Representatives everywhere.

DOBECKMUN

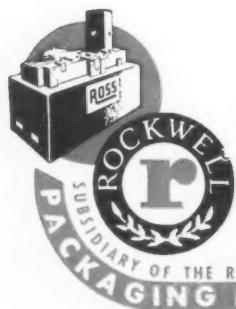
► Self-selling packages in processed films and foils ◄



Another ROSS First!

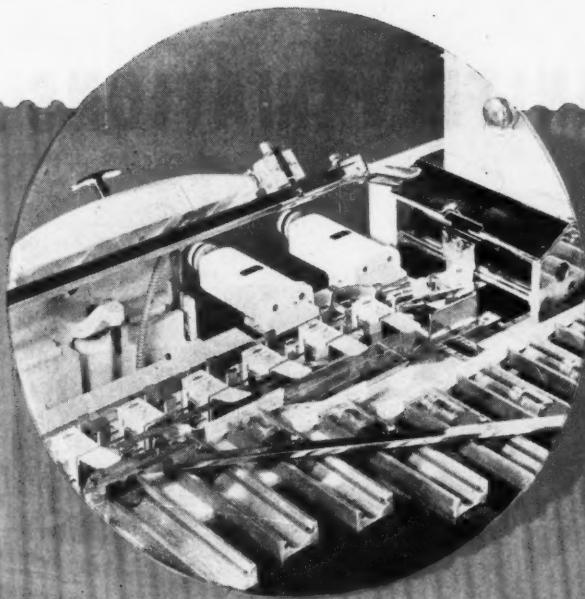
The creative genius of ROSS engineers is reflected in the versatility and matchless efficiency of the new automatic cartoning machine developed to improve the packaging of penicillin and similar cartoning problems.

This ROSS machine effortlessly handles the cartoning of bottles, collapsible tubes, candies, tooth brushes, soap, spark plugs, powder in envelopes, etc., with no change in its basic principle. Slight variation of carrier pockets or buckets makes it possible to load a variety of items without adjustment.

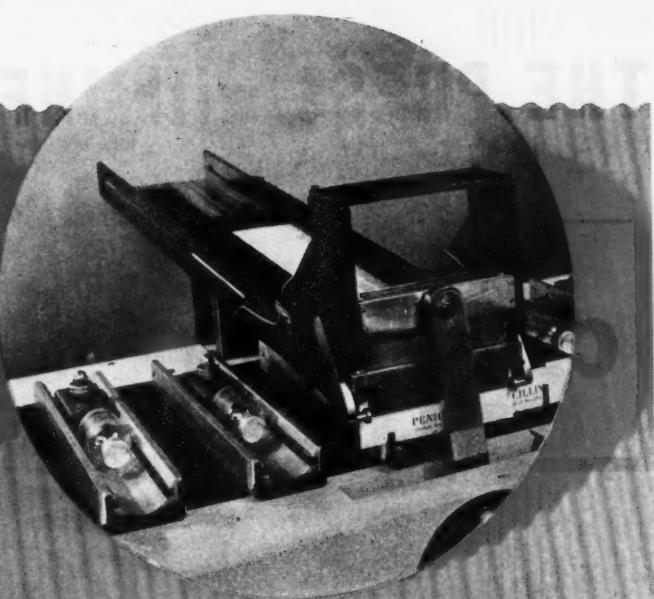


- PRECISION PARTS
- DIAL CONTROL
- MASTER SPEEDRANGER

THE ROSS WAY



Above illustrates the latest ROSS design for imprinting code dates and other data on the flap or face of carton. This does an actual printing by rotary press methods, thus assuring a neat, clear printing job. Also illustrates method used in loading individual tubes, bottles, etc., that can be packaged by this method.



Above illustrates new ROSS circular inserting device. By use of air, pre-folded circulars are separated, automatically fed into position ahead of bottle or load, ready to be inserted into cartons with the load. By an ingenious method, the carrier pocket is advanced into position for receiving pre-folded circular. When it's received, re-tracks lap the circulars over each other, thus making it possible to use long circulars on close pocket centers.

ROSS AUTOMATIC and semi-automatic cartoning machines are unique in the industry. Functional streamlining, engineered for precision adjustment, with all parts machined with fixtures and jigs, insure complete interchangeability.

ROSS engineers are at your service. Your inquiry is invited. Mail the attached coupon for complete engineering information, bulletins:

WRITE
FOR YOUR
COPY
TODAY



- SELF OILING
- HIGH PRODUCTION
- VERSATILE ADJUSTABILITY

IS THE NEW WAY

A. H. ROSS CO., INC. SUBSIDIARY OF THE ROCKWELL MFG. CO.
LUDLOW, KY., U. S. A.

Gentlemen: Please send me, without obligation, ROSS CATALOG giving engineering and performance data on ROSS cartoning machines.

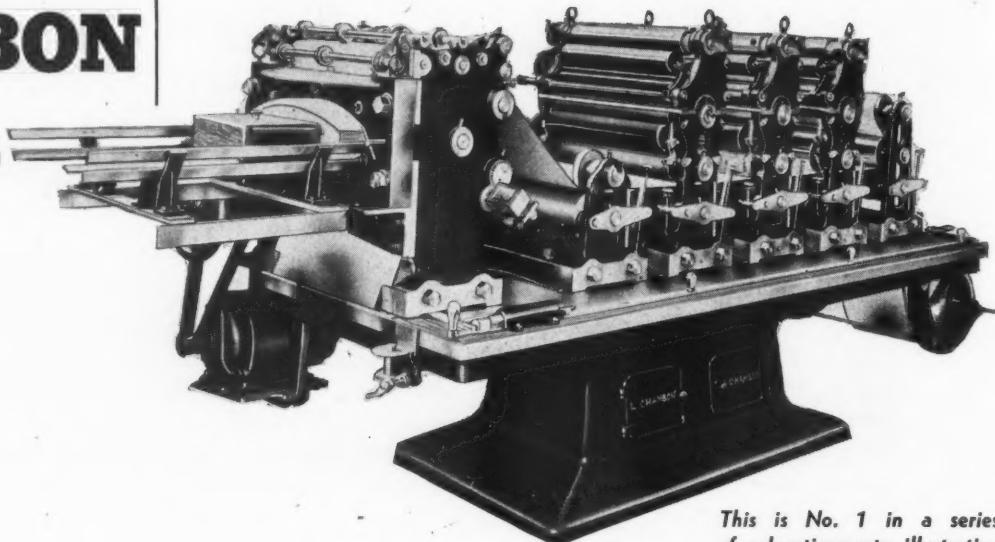
NAME _____

COMPANY _____

ADDRESS _____

THE PRESS with INFINITE VARIATIONS . . .

THE CHAMBON



*This is No. 1 in a series
of advertisements illustrating
the Chambon Rotary Presses*

The Chambon Rotary Press is simply standard equipment capable of an almost limitless number of variations—designed to meet your individual requirements.

Illustrated here is the Chambon Letter Press machine equipped to print in three colors. The basic design, like all Chambon presses, is standard. But the bed of this machine is built to suit the requirements of your particular job. The press is equipped with a Vertical Die Cut unit suitable for blanking out paper cups or containers. It is capable of turning out 15,000 to 18,000 units per hour.

All Chambon presses are famous for

- SIMPLICITY OF DESIGN
- INTERCHANGEABLE UNITS
- REDUCED PRODUCTION COSTS
- STRONG CONSTRUCTION
- CONSISTENT QUALITY OF WORK
- CUSTOM-BUILT TO YOUR SPECIFICATIONS

L. CHAMBON CORPORATION

Custom Printing Presses

320 WEST 46th STREET • NEW YORK 19, N. Y.

Chambon Rotary Printing Equipment from 7" to 28" (Aniline, Letterpress, Offset, Rotogravure) Diecutting, Sheetcutting or Rewinding Attachments; Slitters and Rewinders from Tissue to Cardboard; Laminating and Coating Attachments. Complete line of Converting Equipment for Cigarette Papers, Box-Printing and Forming Machines (Folding and Set-up).



MAYBE YOUR PRODUCT NEEDS A GAS MASK!

A paper gas mask, of course. Or paper water wings. Or a paper fur coat. Or whatever other functional packaging paper might protect it from the heat, cold, humidity, vapors, greases, gases, moulds, and other assaults that nature and man throw against it in transit, in storage, and on display. If so, see the Mead Paper Man. He's the research laboratory of the Mead New Products Division,

where *functional* papers are conceived to solve every conceivable problem. But the Mead Paper Man isn't a know-it-all. If he can't help you, he'll say so. Behind him, however, is one of America's most versatile paper manufacturers, now rounding out its first full century of experience. Yes, sir. The Mead Paper Man may be the very man you need . . . and he'll be delighted to hear from you.

NEW PRODUCTS DIVISION

THE MEAD CORPORATION

CHILLICOTHE, OHIO

OCTOBER • 1946 197



These are three commonly used methods of marking packages—stenciling, labeling and hand-marking—common carriers, such as the railroads, truckers and Railway Express, recommend stenciling. Why take a chance—rain and damp weather obliterate type or hand written labels—avoid hand addressed mistakes—illegibility—labels coming off—lost shipments—delayed shipments. Stencil address your shipments to keep your packages out of the carriers' Lost Shipment Warehouse.

Stenciled Shipments Roll Faster

THE WORLD'S OLDEST AND LARGEST
MANUFACTURER OF STENCIL
CUTTING MACHINES



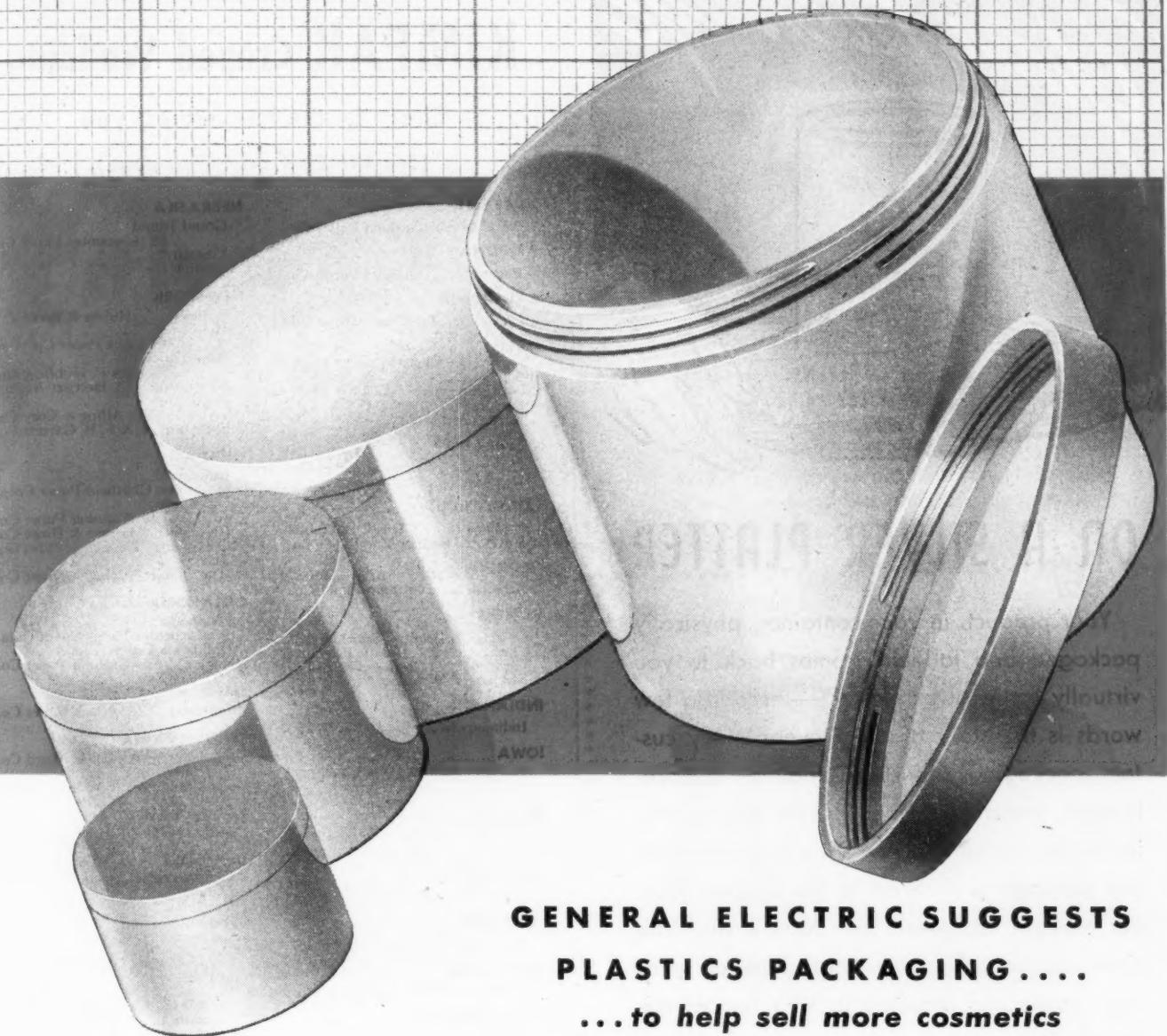
DIAGRAPH-BRADLEY
STENCIL MACHINE CORPORATION

ST. LOUIS 8, MISSOURI

DISTRIBUTORS IN PRINCIPAL CITIES—SEE CLASSIFIED SECTION—TELEPHONE DIRECTORY—
STENCIL CUTTING MACHINES

OVER 100 D-B ITEMS FOR THE SHIPPING ROOM

NOW BEING PRODUCED AT NO. 1 PLASTICS AVENUE



**GENERAL ELECTRIC SUGGESTS
PLASTICS PACKAGING....
...to help sell more cosmetics**

This container, now being produced at General Electric for Broder Industries Inc., was designed to do double duty. Its ivory-like appearance makes an attractive point-of-sale display for a line of cosmetic creams, and it has an after-purchase use in the home for such items as buttons, jewelry or sewing materials.

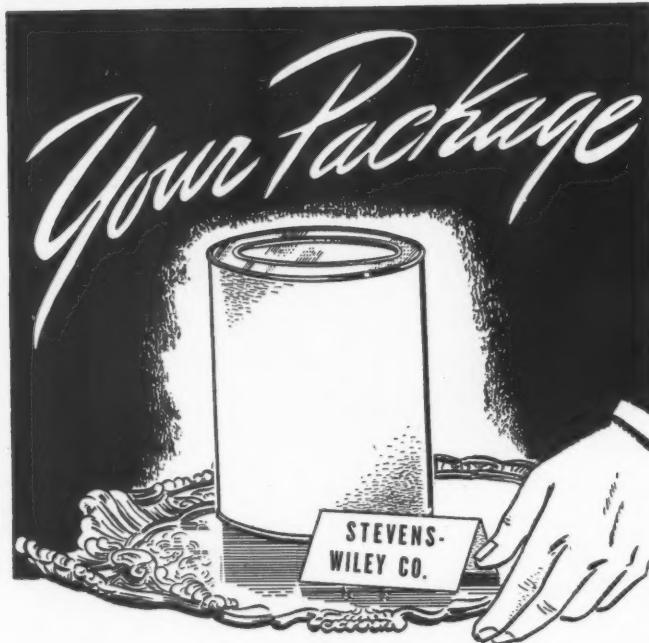
It's just one of the plastics packaging ideas to be found at No. 1 Plastics Avenue. G-E designers, who know the advantages and limitations of *all* plastics, are well aware that no *one* plastics material can serve every packaging purpose. They will be glad to help you select the right material to fit your particular requirements.

G.E.'s *complete* plastics service will provide you with original designs for your approval. Or, if you prefer, they will stand by to help you "ready" your own design for economical production.

Bring your packaging problems to General Electric—the world's largest manufacturer of finished plastics products. Get the finest in mold-making and production facilities.

Talk it over with our plastics consultants. For an appointment, write to Section P-5, Plastics Divisions, Chemical Department, General Electric Company, 1 Plastics Avenue, Pittsfield, Massachusetts.

GENERAL  ELECTRIC
EVERYTHING IN PLASTICS



ON A SILVER PLATTER

Your product, in your container, physically packaged and labeled, comes back to you virtually "on a silver platter"—there in a few words is the story of the Stevens-Wiley custom packaging service. Complete, comprehensive, versatile . . . Stevens-Wiley service embraces any phase or every phase of dry packaging. Geared to the biggest jobs, our modern equipment can handle the little ones economically, too. Regardless of what your packaging problem is, why not let the Stevens-Wiley engineers plan an efficient production schedule that will dove-tail with your own equipment and facilities.

WRITE OR CALL FOR ADDITIONAL INFORMATION WITHOUT OBLIGATION



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of

KIMPAK* Creped Wadding

Check for the one nearest you

(See KIMPAK on facing page)

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ARIZONA

Phoenix . . . Graham Paper Co.

CALIFORNIA

Fresno . . . Zellerbach Paper Co.
Los Angeles " " "
Oakland " " "
Sacramento " " "
San Diego " " "
San Francisco " " "
San Jose " " "
Stockton " " "

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Denver . . . Graham Paper Co.

CONNECTICUT

Bridgeport . . . Charles F. Hubbs
Hartford . . . Rourke-Eno Paper Co.

GEORGIA

Atlanta . . . Graham Paper Co.

ILLINOIS

Chicago . . . Bradner Smith & Co.
Chicago . . . Abana Products
Chicago . . . Graham Paper Co.
Moline . . . Newhouse Paper Co.

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Indianapolis . . . Crescent Paper Co.

IOWA

Des Moines . . . Carpenter Paper Co.
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San Antonio . . . " "
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Salt Lake City . . . Zellerbach Paper Co.

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*KIMPAK (trade-mark) means
Kimberly-Clark Creped Wadding

KIMBERLY-CLARK CORPORATION

Neenah, Wisconsin

122 E. 42nd St., New York 17
155 Sansome St., San Francisco 4

8 S. Michigan Ave., Chicago 3
22 Marietta St., Atlanta 3, Ga.

Kimpak^{*} Float Packaging



★ Shields Delicate Surfaces

Cloud-soft and clean, KIMPAK protects the most highly finished surfaces against press-marking, scratching, rubbing, marring or other damage in shipment. One important reason why much of America's finest merchandise goes to market in KIMPAK.

Photo courtesy Zenith Radio Corp.

We are producing all the KIMPAK we possibly can, but, due to the great demand your distributor may have some difficulty in supplying you immediately.

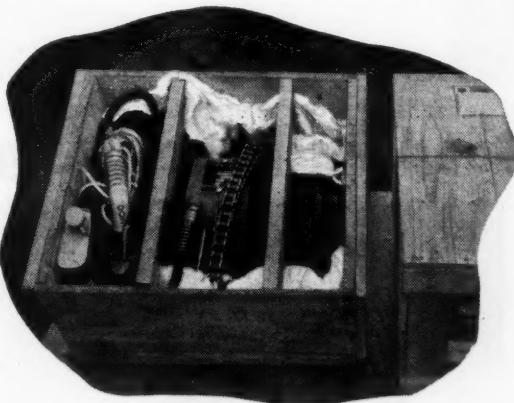
An illustrated booklet on KIMPAK "Float Packaging," is now available. For your free copy, see your KIMPAK Distributor or mail a postcard to Kimberly-Clark Corporation, Creped Wadding Division, Neenah, Wisconsin.



★ Guards Liquid Shipments

Thick, resilient KIMPAK Creped Wadding fends off shocks that shatter fragile bottles. And in case of leakage, there are KIMPAK types that will absorb up to 16 times their weight in water within 30 seconds! Liquid or solid products ship more safely in KIMPAK.

Photo Courtesy D. A. Lubricant Co. Inc.



★ For Every Interior Packaging Method

Whichever basic interior packaging method you use—blocking and bracing, flotation, absorbent packaging, or surface protection—you'll find that KIMPAK Creped Wadding can do the job you require better, faster and at lower cost.

Photo courtesy Yale & Towne Mfg. Co.

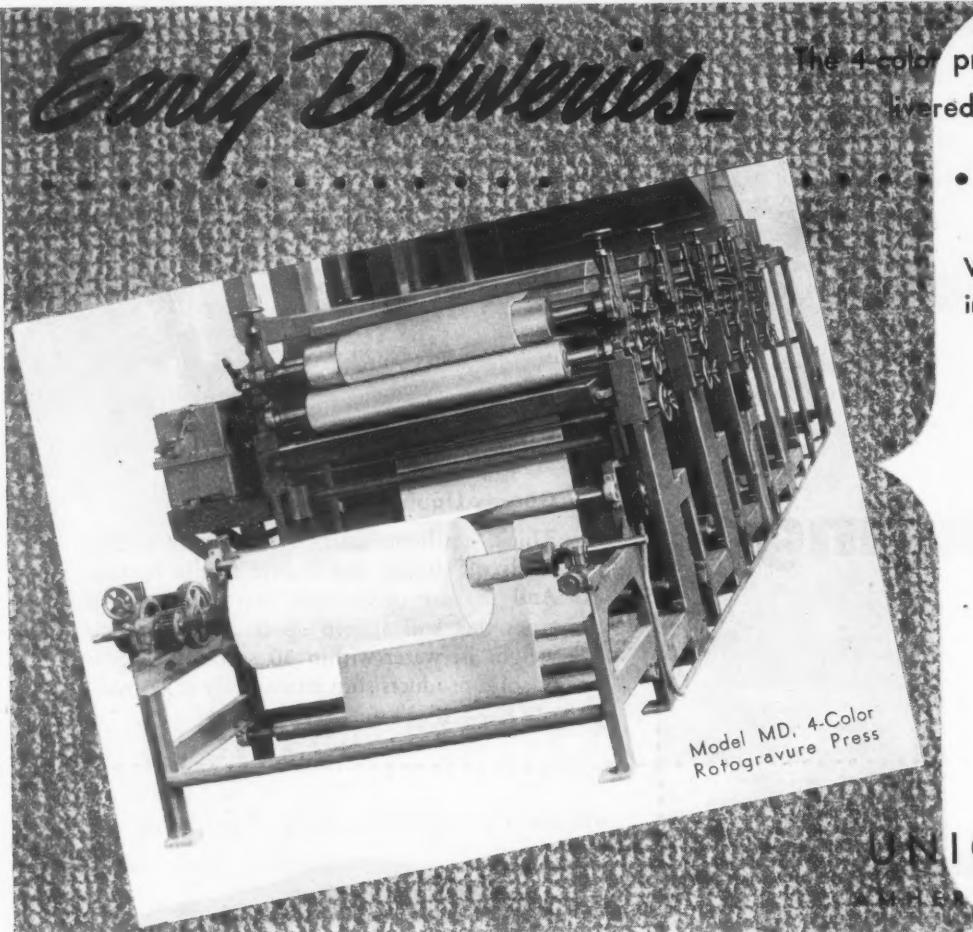
We are producing all the KIMPAK we possibly can, but, due to the great demand your distributor may have some difficulty in supplying you immediately.

An illustrated booklet on KIMPAK "Float Packaging," is now available. For your free copy, see your KIMPAK Distributor or mail a postcard to Kimberly-Clark Corporation, Creped Wadding Division, Neenah, Wisconsin.

Kimpak
REG. U. S. PAT. OFF. & FOREIGN COUNTRIES
CREPED WADDING

A PRODUCT OF
Kimberly-Clark
RESEARCH

*KIMPAK (trademark) means Kimberly-Clark Creped Wadding



The 4-color press illustrated was delivered in four months.

• • • • •

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- ★ GLASSINE
- ★ WAX PAPER
- ★ GREETING CARDS
- ★ PAPERTENE
- ★ TABLE TOPS
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- ★ GIFT WRAPS
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Write us your specific requirements — Bulletin furnished on request

UNICRAFTS, Inc.
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Good Package Design



IMPORTANT TO MERCHANTISING AND TURN-OVER

Attractive packaging makes merchandise desirable. . . . It is the silent salesman of your product on retailers' shelves.

Recognized for their contribution to outstanding design in modern packaging, the ability and experience of the WLS staff of artisans are at your service.

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W. L. STENSGAARD AND ASSOCIATES, INC.
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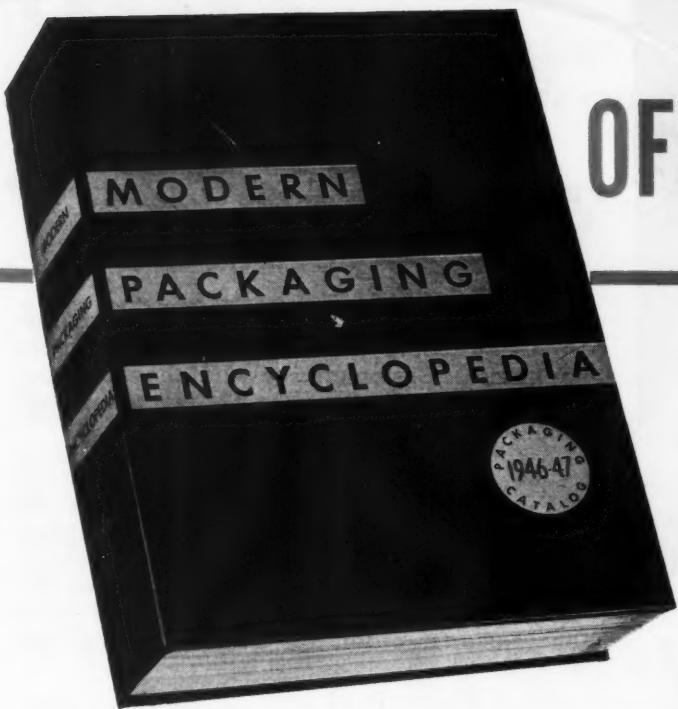
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PACKAGING CATALOG CORP.

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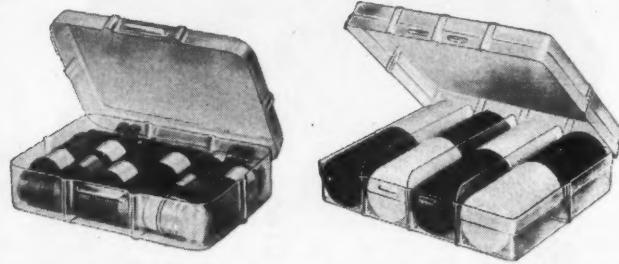
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Reg. U. S. Pat. Off.

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BOXES**



SALES jump when your product is attractively displayed in Pyra-Shell transparent containers. Customers see what they are buying, and Pyra-Shell makes what they see look good to them.

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Pyra-Shell compartmented containers as illustrated permit you to package complete assortments of your most popular numbers—sell them as a single unit. Individual sales are larger—profit is greater. Dealers find your line easier to order, easier to display, easier to sell.

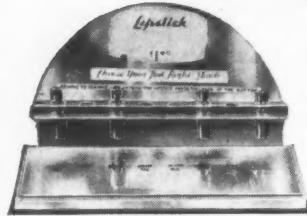
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Address Department P

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plastic
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fabrication

"ALL UNDER
ONE ROOF"



Printloid produced this plastic lipstick display for a leading manufacturer of cosmetics. It presented unusual problems of design and manufacture. Utilizing its versatile fabricating facilities, Printloid devised a plastic product both functional in use and appealing in appearance.

Consult with our design staff now.

Write for our new 1946 catalog of special plastic fabrications.

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ELECTRONIC CONTROLLED MACHINES**

IT PAYS TO WRAP THE HAYSEN WAY

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100,000 WATCH BOXES

for popular priced watch line

This would be only the initial order...placed by one of the largest distributors of watches in America. What have you to offer?

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COMPANY
 OF
AMERICA
 INC.
 on their
50th Anniversary

AMF is proud of its contribution to the success of this great Company and the quality reputation of their individually wrapped Tootsie Candies.

In addition to their 17 AMF Rose Candy Machines, The Sweets Company of America, Inc., will soon have 10 more AMF machines installed to help them meet the ever-increasing demand for their high quality Tootsie Products.

★

USED BY THE COUNTRY'S LEADING CONFECTIONERS

★

Write the Rose Candy Machinery Division
 for new circulars on AMF Rose
 Candy Machines



AMERICAN MACHINE & FOUNDRY CO.
 511 FIFTH AVENUE, NEW YORK 17, N. Y.

**Finishing Can MAKE
 A Package**

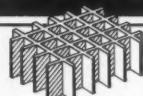
Finishing—the final touches—can make or break your package. We specialize in every type of finishing operation — varnishing, lacquering, gumming, die-cutting, embossing, punching, straight cutting, paraffining — and offer our special process: **LUSTRALITING**.

JOHN W. CRAWFORD CO.

Est. 1859

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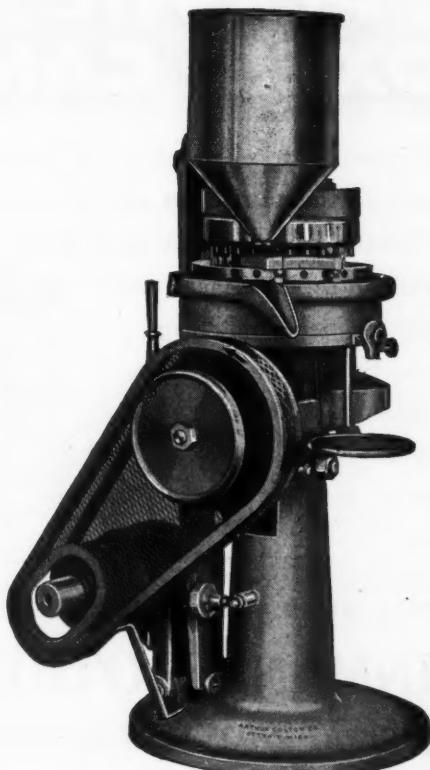
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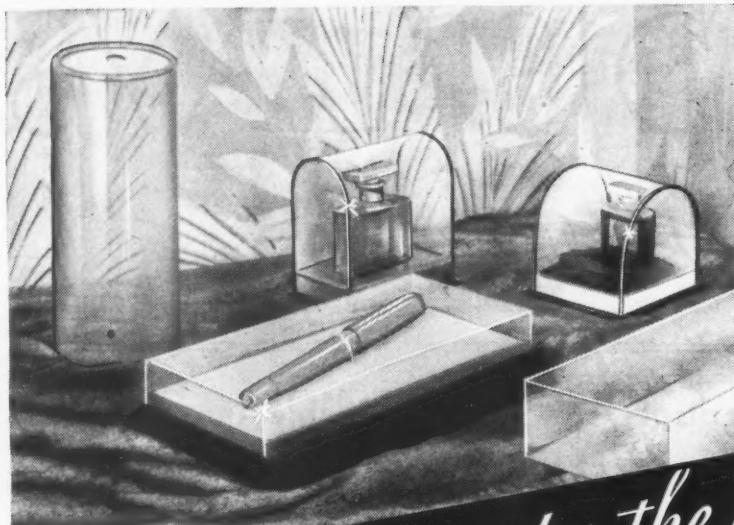
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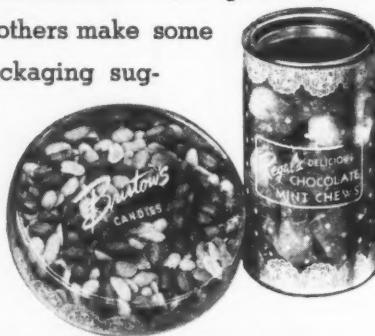
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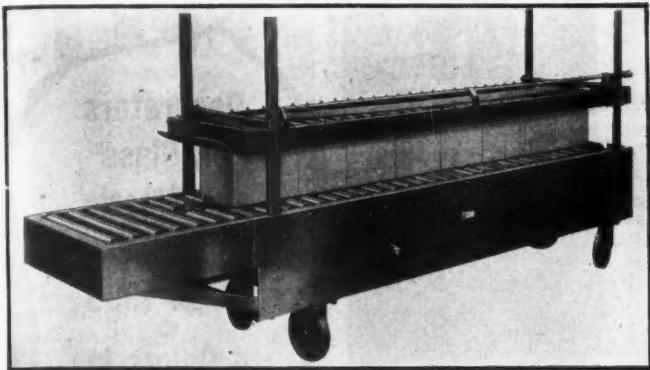
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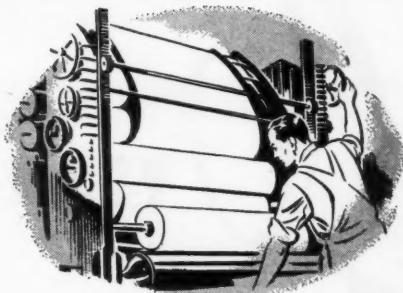
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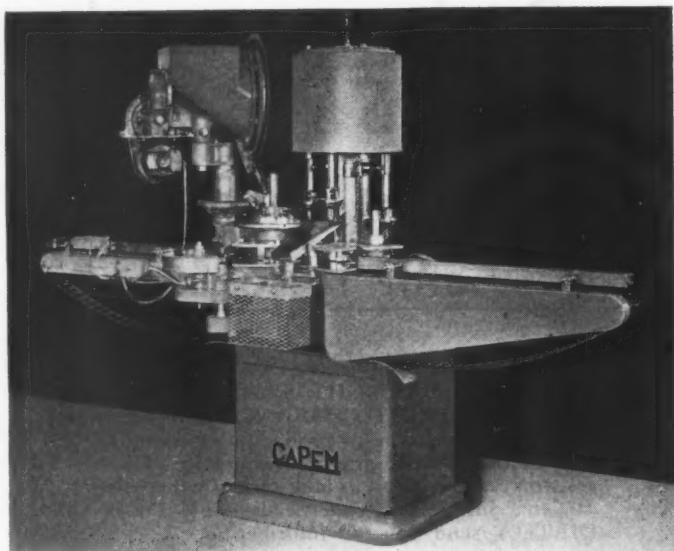
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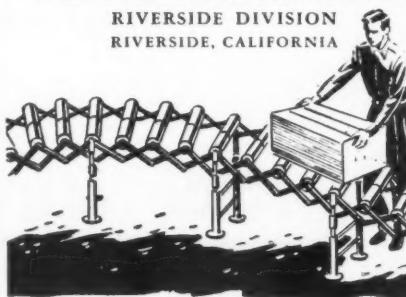
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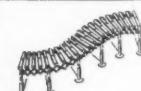
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few
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on conveyor regardless
of curves



Roller design keeps box
on conveyor regardless
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Roller design keeps box
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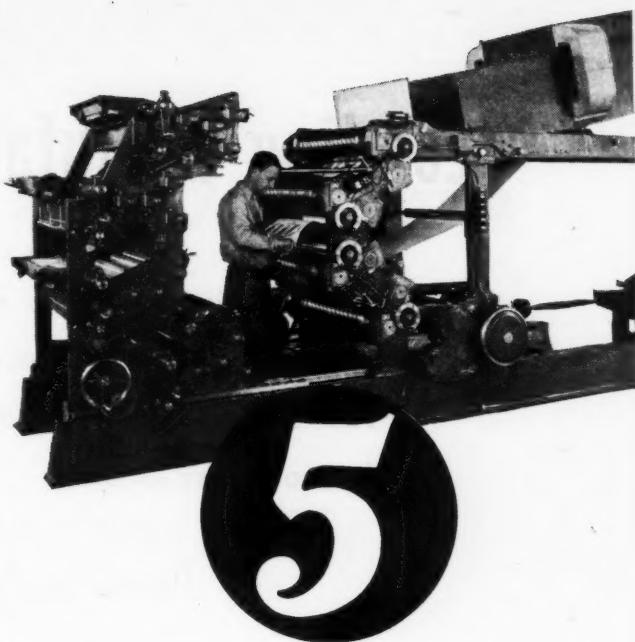
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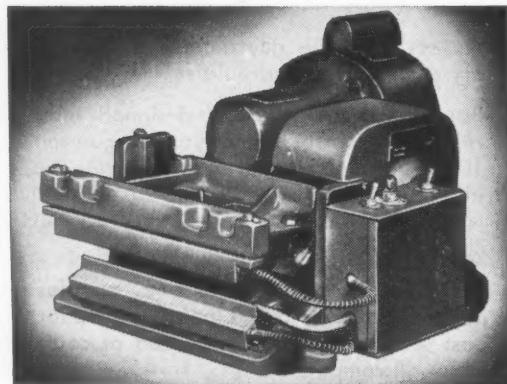
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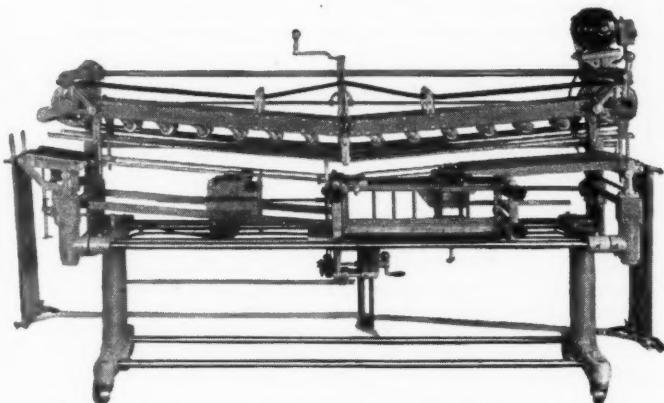
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Quickly Set For All
Sizes of Containers**



Quarter-Pint to Gallon Cans, Glass Jars or other cylindrical containers in one minute! Simple adjustment requiring no special tools.

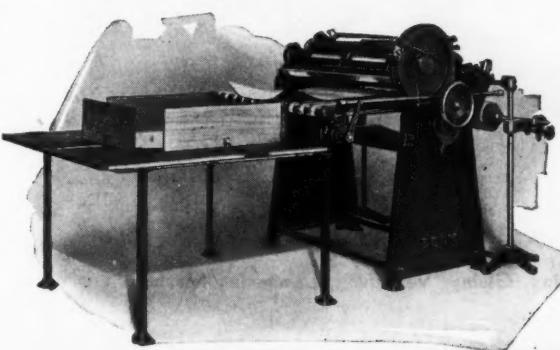


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BECK SHEETERS designed and built for the mastery of accuracy and low costs, possible only through their dependable and automatic operation: these can be the unfailing answer to your needs.

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Publisher reserves the right to accept, reject or censor a classified copy.

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\$5000 to \$8000 per year starting salary for man with sales and administrative experience in packaging industry. Desirable to have some experience with thin films and laminations and their applications to processed foods. Mechanical or chemical engineering would be helpful. To take charge of market development and build nation-wide sales organization. Established concern located midwest. Outline your qualifications and appointment can be arranged. Replies will receive strict confidential handling.

Box 463, Modern Packaging.

WANTED to REPRESENT One or More Advertisers in MODERN PACKAGING. Have broad experience in manufacturing and selling of paper and paper board items including set up and folding boxes and many converted paper items. Have good variety of contacts and best of references. Interested in St. Louis and surrounding territory. Box 464, Modern Packaging.

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Very anxious to obtain automatic packaging line for eight and one-half (8 $\frac{1}{2}$) ounce package, either new or second hand. Would consider rental basis for about sixty (60) to eighty (80) packages per minute. Can use either bag inserter or double package maker type. Please address all correspondence to: W. A. Reed, Chief Engineer, Taylor-Reed Corporation, Mamaroneck, New York.

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Flat and Square
CELLOPHANE BAG MACHINES

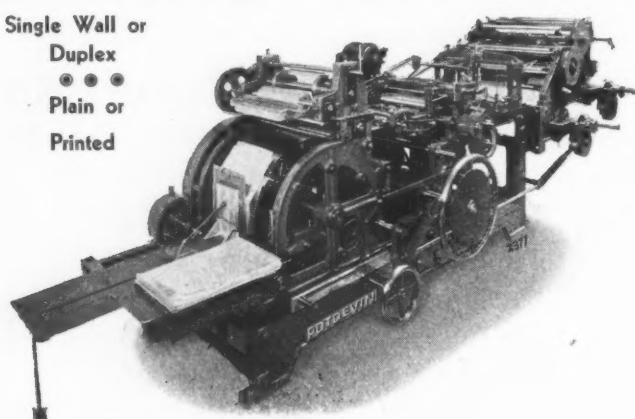
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DO YOU want PERMANENT CARTON BUSINESS?

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POSITION WANTED

By young man with 9 years exceptionally successful experience, in charge of sales and production in small folding box plant. Excellent education and background. Posses sound common sense combined with imagination and progressive ideas. Now hold a good position but desire opportunity for broader experience. Will consider location in any part of country, with some travel, if necessary. Box 462, Modern Packaging.

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FOR SALE: One Package Machinery, Type FA-2-QT Automatic Cellophane Wrapping Machine complete with electric stop, motors and heaters 220-440 volts, 3 phase, 60 cycle, used less than 60 days. Fine machine but have no further use as discontinuing manufacture of athletic shirts and shorts. Wire or telephone The Perry Knitting Company, Perry, New York.



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Typical specialty bag
—Thilco duplex
Kraft to prevent product sifting.



TWENTY-FOUR years ago Thilmany installed a 14 machine bag mill. Thus, another milestone in our parade of progress was passed; and, in so doing, we greatly increased our versatility as a single paper packaging source "under one roof."

Our bag mill has grown considerably through the years. New, modern, high speed machines have been added — and many more are on the way to help satisfy your demands for greater output in merchandising, industrial, and specialty bags of all types.

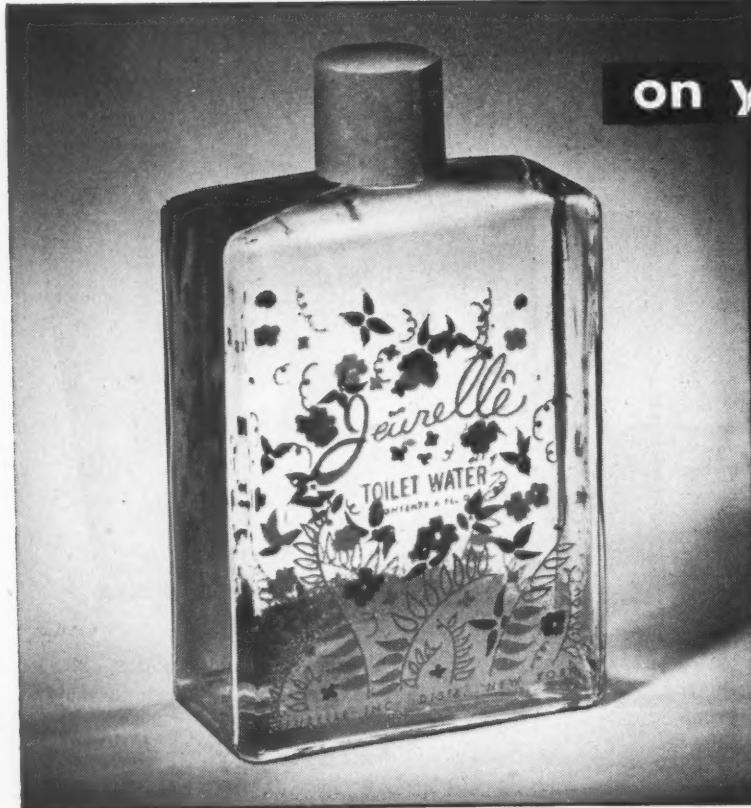
The Thilco bag line offers a full range of flat, square, special self-opening, and single or double wall types. They are produced from our own M. F.

and M. G. Krafts, Glassines, Wax and Asphalt Water-proof papers which can be laminated and machine marked, printed or embossed for identification.

Decorated bags with matching wrapping papers provide a perfect advertising message carrier for your firm or products. This entire packaging service can be selected from stock patterns or specially designed and "tailor-made" to your own specific requirements.

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Emphasizes transparency

Lends distinction

Helps sell the product

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Jefferson City, Mo., is the center of a five-man fact-finding committee studying the potentialities of Government participation in the two-day hearings advanced by the program. The committee is to be headed by the chairman of the Missouri Bar, Robert F. Frazee, and the hearings are to be opened at the state capitol on Aug. 2.

Mr. Frazee said: "The rest of the committee will be appointed by the Governor, and necessary agencies and necessary abandonment."

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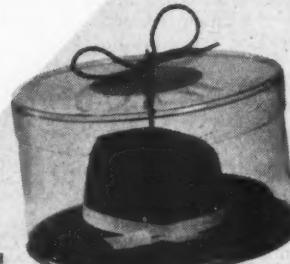
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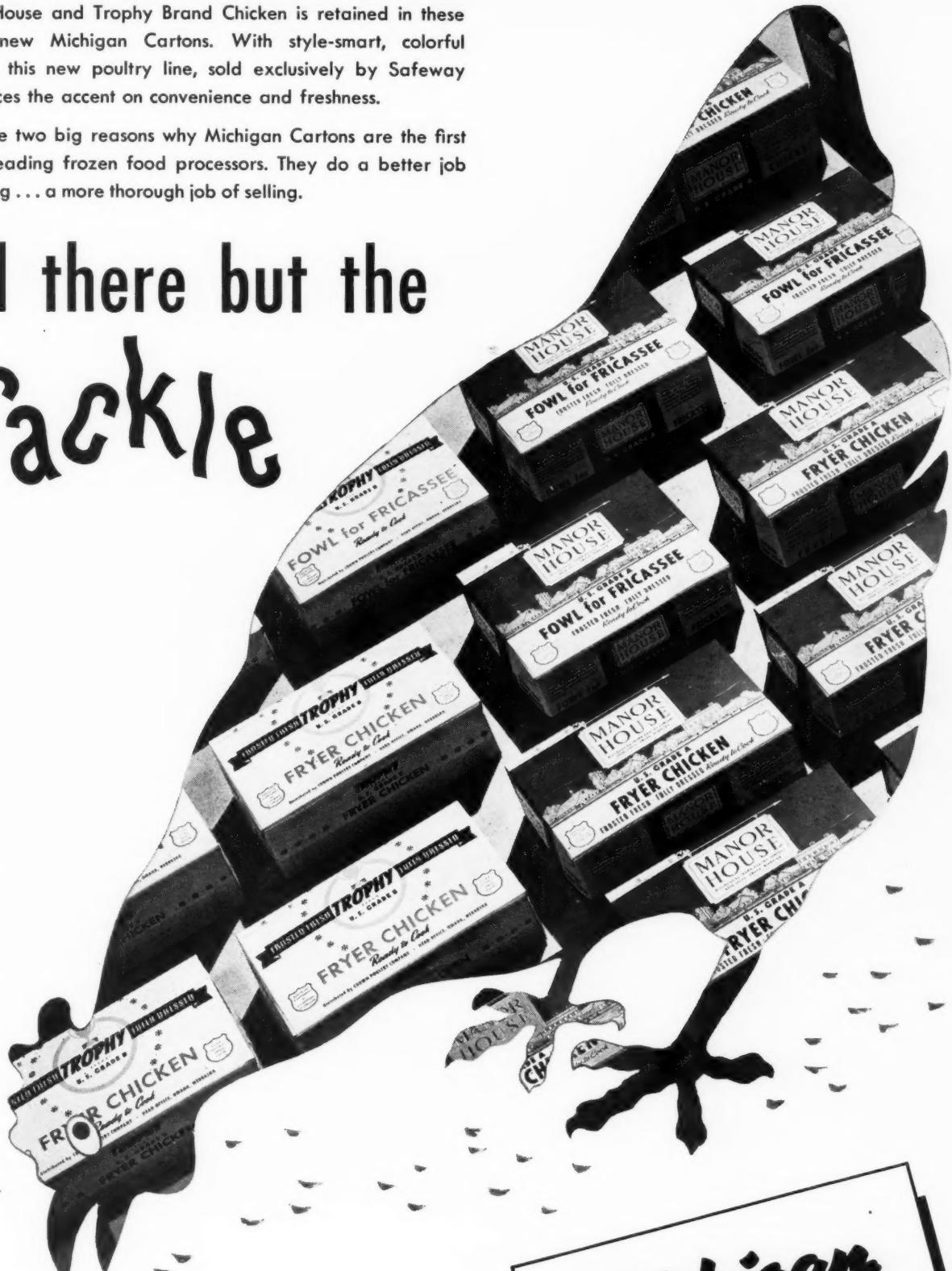
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